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United States
Department of
Agriculture

National
Agricultural
Statistics
Service

Agricultural
Statistics
Board

Washington
D.C. 20250

2004 Wheat Objective Yield Survey

Interviewer's Manual

March 2004

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GENERAL

You are one of approximately 150 enumerators in 12 States employed to obtain information from farmers about their wheat crop. The information you obtain will be used to estimate wheat acreage and yields during the crop season.

Your importance in this work will become apparent as you read how these surveys operate. Briefly, your job consists of interviewing designated farm operators and making monthly observations in one or more of their wheat fields. The operators and fields were randomly selected from those farmers who reported wheat planted or wheat for harvest on current acreage surveys. You will interview each farmer on your list to find out how many acres of wheat are now expected for harvest. You will lay out at least two small units in the sample field and make plant counts and measurements during the growing season. At certain stages of maturity, you will clip a sample of wheat heads and send them to a laboratory. Soon after the crop has been harvested, you will return to some of the assigned sample fields to glean wheat lost in harvesting. You will also interview the farmers contacted earlier to find out how much wheat was actually harvested from sample fields.

The terms "Objective Yield Survey" and "Objective Yield Forecast" are used frequently in this work. The term "Objective" means that the data are based upon actual counts and measurements. **Objective yield studies are scientifically designed and field observations and measurements must be made precisely according to rigid rules given in this Manual.** The accuracy of each forecast depends directly upon your performance and the performance of all other enumerators working on this survey.

All enumerators will attend a training school before the survey work starts. Procedures, definitions and forms will be explained. Your supervisor will give you a sample list and a field kit envelope for each sample. He/she will also give information on the location of sample fields and instructions telling when work is to be done.

PURPOSE

The purpose of the Wheat Objective Yield Survey is to provide:

1. Counts and measurements which can be used to forecast or estimate yield per acre during the season.
2. Counts and weights of the wheat left in the field after harvest. These data will be used to estimate harvesting losses per acre.

3. Changes in acreage intended for harvest that result from the sample field being plowed up or destroyed after the March Crops/Stocks Survey or June Area Survey, but before harvest.

The procedures followed on this survey provide for obtaining counts of plants growing in a specified area of the sample field. Each month the fruit on the sample plants will be counted. Mature wheat growing within the sample units will be harvested according to prescribed procedures. The various counts and measurements obtained on the monthly surveys are combined and forecasting formulae are used to predict yields per acre. Estimates of yield are obtained at harvest time when the sample units are harvested. Objective Yield Survey results have shown that the various field counts and measurements provide reliable forecasts and estimates of yield for individual States and for the Nation. The sample units are too small, however, to provide reliable yield estimates for individual fields.

FARMER BENEFIT

The purpose of the Objective Yield Survey is to accurately predict the production of wheat at the State, Regional and National levels beginning with the May 1 forecast published in the May Crop Production report.

As you know, the size of these crops and any change in the size are crucial information needed by many people involved in and out of agriculture. This is why our reports make national news as these crops near harvest time.

The individual most needing this information is the farmer, for only with accurate statistical information about the size of these crops can the farmer make knowledgeable decisions about (1) marketing strategies (i.e. to sell early using forward contracts, to hedge on the futures market, to sell on the cash market or to use a combination of these) (2) farming practices (i.e. to alter normal farm practices such as on farm storage in place of selling or storing at the local elevator) or (3) changing intended crops usage (i.e. feeding wheat instead of selling it).

The Objective Yield Survey provides factual information which is a tool farmers can use to make knowledgeable business decisions. This tool is needed by any farmer who sells wheat.

Wheat Objective Yield Developed

Objective Yield surveys provide crop yield information for estimates or forecasts based directly on counts, measurements and weights of the crop made from small plots randomly placed in a set of sampled fields. The sample for your state was drawn from expanded acres of winter wheat for harvest in the March Crops/Stocks or Durum or spring wheat planted acres in the June Area Survey. Each sample has a known probability for selection based on the size of field or operation. Objective yield surveys are completed in time to be used for monthly crop production reports.

Although crop acreage for wheat changes from year to year, some of the largest variations in wheat production are caused by fluctuations in the yield per acre. For the better part of a century, yield forecasts were based on appraisals of expected yield or conditions of the crop as a percentage of normal. This survey procedure generally produced satisfactory wheat forecasts and continues to be used.

However, large yield variations are often not fully reflected in growers' subjective appraisals. Also, sampling error cannot be measured for non-probability surveys. These problems led to the development of objective methods to forecast and estimate wheat production. The objective yield measurement program has become a vital, strengthening factor in improving monthly production forecasts and estimates throughout the crop season.

There is a continual effort to improve procedures, simplify forms, and update methods to keep the Objective Yield survey responsive to the continuing changes in the crop production activities of the nation's agricultural economy.

Reports From Wheat Objective Yield Surveys

MAY CROP PRODUCTION <ul style="list-style-type: none">● winter wheat● acreage, yield and production	May 12, 2004
JUNE CROP PRODUCTION <ul style="list-style-type: none">● winter wheat● acreage, yield and production	June 11, 2004
JULY CROP PRODUCTION <ul style="list-style-type: none">● winter wheat● acreage, yield and production	July 12, 2004
AUGUST CROP PRODUCTION <ul style="list-style-type: none">● winter wheat● spring wheat● Durum wheat● acreage, yield and production	August 12, 2004
SMALL GRAINS ANNUAL SUMMARY <ul style="list-style-type: none">● winter wheat● spring wheat● Durum wheat● acreage, yield and production	September 30, 2004
ANNUAL SUMMARY <ul style="list-style-type: none">● winter wheat● spring wheat● Durum wheat● acreage, yield and production	January 13, 2005 (Tentative date)

Use of Reports Issued by USDA

Reports issued by the Department of Agriculture provide reliable and timely information for use by farmers, bankers, credit associations, buyers, agricultural economists, policy makers, etc. When all participants in the industry are accurately and equally informed by an unbiased source, no one has the advantage of rumors or other special information that could unfairly influence prices.

These reports may reach the farmer through the Internet, commodity news service reports, television, radio, newspaper, and farm magazines. All these reports are based on NASS crop reports.

Sometimes farmers feel that USDA reports only drive prices down. It is true that prices may change based on crop reports. In the long run, however, it is the actual supply entering the market along with demand that determines prices received by farmers. Reports have had a positive effect as often as a negative effect over the years. Remember, if unbiased crop reports were not available to all parties, industry reports would be the only data available for farmers to use.

Farmers and other data users can request reports through the State Statistical Office. If the respondent would like a list of reports available from the State Statistical Office, give the operator the SSO address or send the operator's name and address to your Survey Statistician.

THE SAMPLE

Winter Wheat sample fields are selected from farms who reported Winter Wheat acreage for harvest during the March Crops/Stocks Survey. Durum and Spring Wheat samples are selected from tracts reporting Durum or Spring Wheat seedings during the June Area Survey. All fields reported in the survey have a chance of being selected in the Objective Yield Survey. All samples are drawn so that the probability of any field being chosen is related to the size of the field. All fields reported on the survey are eligible for sampling, regardless of size. A field may be selected two or more times. If this happens, two or more sample numbers will be assigned to the field and separate counts are to be made for each sample in the field.

HOW ROWS AND PACES ARE DETERMINED FOR OBJECTIVE YIELD

There is an upper limit on the field acres which are used to determine rows and paces. For corn, potatoes, soybeans, and cotton, the acres are set to 80 if there are more than 80 acres in the field. For all the wheat OY crops, the maximum field acres used are 128 acres. The field is assumed to be rectangular and the width is calculated as $\frac{5}{8}$ of the length. These numbers are converted to paces and random numbers used to generate row and pace counts.

For corn, potatoes, soybeans, and cotton, when the number of rows and paces are generated, an adjustment is made so that the sample falls within $\frac{1}{4}$ of the field (using the maximum field size described above). For wheat, when the number of rows and paces are generated, an adjustment is made so that the unit 1 sample falls within $\frac{1}{4}$ of the field if field acres are ≤ 60 acres, and within $\frac{1}{9}$ of the field if field acres are > 60 .

These adjustments limit how many rows and paces the enumerators need to walk into the fields. For corn, potatoes, soybeans, and cotton, the maximum numbers of rows possible is 296 and the maximum number of paces is 473. For wheat, the maximum number of rows for unit 1 is 409 and the maximum number of paces for unit 1 is 256. (Unit 2 is then calculated as Unit 1 + 30 more paces).

EQUIPMENT

The items of equipment and supplies which will be used on the Wheat Objective Yield Survey are listed below. Your supervisor is responsible for furnishing all your necessary supplies and equipment; you are responsible for the proper use and care of all items furnished. If your supplies run low or equipment becomes unusable, notify your supervisor immediately.

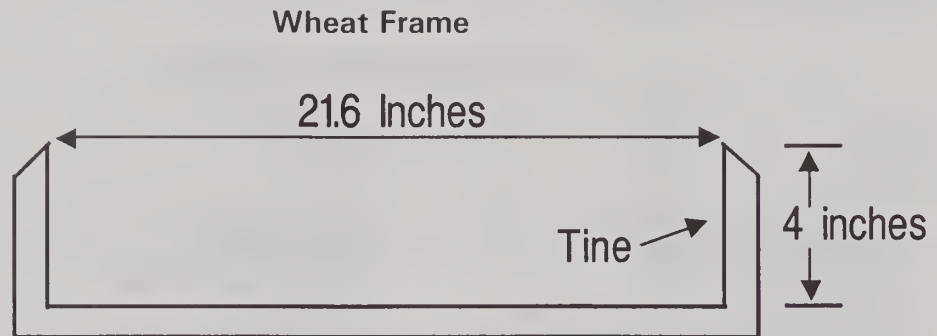
List of Equipment and Supplies

Check Item	Check Item
<input type="checkbox"/> Interviewer's Manual	<input type="checkbox"/> Corner Stakes
<input type="checkbox"/> Identification Card	<input type="checkbox"/> Unit Location Stakes
<input type="checkbox"/> Motor Vehicle Accident Report Kit	<input type="checkbox"/> Yardstick
<input type="checkbox"/> Form NAS-011 (Time and Mileage)	<input type="checkbox"/> Cloth Mailing Sacks
<input type="checkbox"/> White Envelopes letter size	<input type="checkbox"/> Canvas Sachel
<input type="checkbox"/> Kraft Envelope-9-1/2" x 12"	<input type="checkbox"/> Hand Counter
<input type="checkbox"/> Aerial Photos, Contact Prints, and/or Itek Print (spring and Durum wheat only)	<input type="checkbox"/> Steel tape-feet in tenths of ft.
<input type="checkbox"/> County Maps	<input type="checkbox"/> Anchor Pin
<input type="checkbox"/> State Highway Map	<input type="checkbox"/> Red Florist Stakes
<input type="checkbox"/> Photo Mailing Boxes	<input type="checkbox"/> Blue Florist Stakes
<input type="checkbox"/> Masking Tape	<input type="checkbox"/> Flagging Ribbon
<input type="checkbox"/> Sample Field Kit Envelopes	<input type="checkbox"/> Pager Bags (small, medium, large)
<input type="checkbox"/> 3-Ring Notebook	<input type="checkbox"/> Rubber Bands
<input type="checkbox"/> Pencils-Red & Blue Lead	<input type="checkbox"/> Regional Lab ID Tags
<input type="checkbox"/> Ball Point Pen	<input type="checkbox"/> Scissors or Shears
<input type="checkbox"/> Mailing Labels or Address Tags	<input type="checkbox"/> Wheat Frame
	<input type="checkbox"/> First Aid Kit
	<input type="checkbox"/> Clipboard

All equipment and unused supplies are to be **returned to the State Office at the end of the season** when instructed by your Survey Statistician.

Wheat Frame

The one-piece wheat frame is made of steel bar stock to measure precisely 21.6 inches inside the 4 inch tines. Avoid any misuse of the frame that might cause it to bend, changing the area to be measured.



Proper use of the wheat frame is most important as are all counts made within each unit. To illustrate: suppose the average wheat row width for all samples was 9.0 inches. Using the 21.6 inch wheat frame for 1 Count Area and 2 Clip Areas times a 9.0 inch row width gives an area of 24.3 square feet per sample or about 6/10,000 of an acre. Nationally there are around 1850 samples selected for winter, other spring, and Durum wheat. These samples equal about one acre of wheat that is actually measured and counted to represent all wheat in the United States. As you can see, your samples and the counts you make on those samples are vitally important to the entire Objective Yield program.

QUALITY CONTROL AND SUPERVISION

The Objective Yield Quality Control Program is designed to aid in the supervision of enumerators, detect faulty equipment, point out inadequacies in instructions, methods, training, and to assure that proper survey procedures are followed. A good quality control program will improve the results of the Objective Yield Survey.

The Survey Statistician is responsible for the overall objective yield program. The Survey Statistician provides most of the training at your State school and issues the necessary equipment and supplies needed for you to complete your assignments.

The Supervisory Enumerator is your immediate supervisor. Your supervisor will provide much of the "on site" field training you will need to complete your assignments. Your supervisor will also spend several hours with each enumerator during the first few days of each survey period. New enumerators will be visited first and, if necessary, revisited after they have completed samples on their own.

The Supervisory Enumerator will complete at least one (1) quality control form (Q-1) for each enumerator under his/her supervision during the survey for each crop assigned. Upon receipt of the Form B's in the State Statistical Office (SSO) the Survey Statistician will inform the Supervisory Enumerator of the samples selected for quality control (samples worked with the supervisor will be excluded). Whenever possible, the supervisor and the enumerator should return to the sample field together while the supervisor completes the Q-1 check of the enumerator counts. The supervisor and enumerator must discuss any differences in counts and the reasons for these differences. These differences will be resolved with the enumerator and documented on the Q-1 form.

PESTICIDE SAFETY

A comprehensive pesticide safety program has been developed for all employees who may be exposed to pesticides while working on the Wheat Objective Yield Survey. The program is designed to protect you from the possibility of overexposure to harmful pesticides.

Overexposure to pesticides, particularly insecticides, could result from home, garden and farm use, as well as unrestricted work in objective yield fields. Objective yield survey work, however, will pose little or no danger to your health when the safety precautions listed in these instructions are followed. Consult your copy of the EPA booklet, "Protect Yourself From Pesticides - Guide For Agricultural Workers", for additional information.

The safety program provides for monitoring and restricting exposure to organophosphorous insecticides. These insecticides are highly toxic to humans within several hours after application. The toxicity drops over time, but the rate of decline depends on the product used, application rate, weather factors and other variables. Organophosphorous insecticides have been in common use for several years. Organophosphorous insecticides are used on most crops. Extreme caution must be taken to avoid overexposure to these insecticides.

To provide maximum protection for your health, the pesticide safety program requires that **you take the following precautionary measures.**

You will ask if any pesticide with organophosphorous content has been applied in the past month. If yes, you will obtain the name of the pesticide and the latest application date. You should explain to the operator that you work in many fields on many different farms during a short period of time and that the sole purpose of the question is to insure that you will not be unnecessarily exposed to harmful insecticides. Informative notes, such as: "The operator will not apply a pesticide;" "He will apply some later;" "The name of the pesticide applied and the last application date;" should be entered on the kit envelope for future reference.

Be sure and ask the operator where the information on pesticide spraying will be posted, so you can check it every month before you enter the sample field. Enter the location on the kit envelope.

A list of organophosphorous insecticides is provided on the next page. The list includes the common names of recommended insecticides along with trade names. If a trade name is not listed, you should determine the common name of the insecticide from the farm operator, insecticide dealer or County Extension Service. If an insecticide does not appear on the list, the insecticide dealer or your County Extension Service should be able to tell you if it is an organophosphorous insecticide.

The signs of pesticide poisoning may resemble fatigue or other common symptoms of illness. However, you can protect yourself by knowing and being alert to the early warning signs of poisoning.

Look for any or all of these signs of sickness, but do not diagnose yourself -- go to your doctor.

Symptoms of Pesticide Poisoning:

- | | |
|-------------------|-------------------------------------|
| ● headaches | ● diarrhea |
| ● dizzy spells | ● heavy sweating |
| ● nervousness | ● breathing difficulty |
| ● sudden weakness | ● seizures |
| ● sick stomach | ● coma |
| ● cramps | ● pupils of the eye reduced in size |
| ● vomiting | |

Reentry Schedule For Field Sprayed

Field Sprayed ANY Pesticide	Field Sprayed ORGANOPHOSPHOROUS	Field Sprayed ORGANOPHOSPHOROUS
Within 24 hours	within 72 hours	within 30 days
DO NOT ENTER FIELD	DO NOT ENTER FIELD ^{1/}	ENTER Use Safety Requirement ^{2/}

^{1/} Field reentry is 3 days or 72 hours.

^{2/} When entering a field sprayed with organophosphorous content pesticide within 30 days, you must:

- (a) Wear a long sleeve shirt, long trousers and head covering.
- (b) Clothing must not be worn more than one day without laundering.
- (c) Work is limited to 6 hours per day in these fields.
- (d) Thoroughly wash all exposed skin areas (hands, face, etc.) that may have contacted foliage.
- (e) Listed below are some organophosphorous compounds that may be applied to wheat.

Trade Name	Common Name
Orthene	Acephate
Sniper	Azinphos-methyl
Lorsban	Chlorpyrifos
Cygon, Cymate, De-Fend, Digon, Dimethoate	Dimethoate
Di Syston	Disulfoton
Ethyl parathion	Ethyl parathion
Atrapa, Fyfanon, Malathion	Malathion
Declare, Methyl parathion, PennCap M	Methyl parathion
Thimet	Phorate

SAMPLE FIELD KITS

You will have a sample field kit for each sample field assigned to you. This will be a large envelope containing the survey forms you will need for the interview and for making counts and observations on the sample(s) for each field. Make certain that you receive a sample field kit for each sample field assigned to you and that all the necessary forms are present.

The number and kind of forms in the sample field kit envelope will vary according to the month that the sample is to be laid out as shown on the following pages. The necessary identification has been entered on these forms in the State office. If there is more than one sample number in the field, this information will be shown on the face of the kit envelope and there will be additional sets of forms as needed for each additional sample. Make certain that you receive a sample field kit for each sample field assigned to you.

When you make your first visit to each field, draw a sketch on the face of the kit envelope showing the sample field, starting corner and unit location. Your supervisory enumerator or any other enumerator with the aid of the envelope should be able to return to the sample field and locate the unit with little difficulty in future months. Indicate highway or farm road numbers and approximate mileage to the sample field on the sample field kit envelope.

At the time of the initial interview, determine the date the operator expects to harvest the field. If harvest is too far away to determine at the time, check with the operator on a later visit to determine the date harvest is expected. Enter this date on your kit envelope. This will help you in scheduling your final pre-harvest visit.

A 3-ring notebook has been included in the supplies you received at the State training school. All sample field kit envelopes should be kept in the notebook. This will allow easy reference and will reduce the risk of lost forms. It may be well to arrange the sample field kit envelopes in the same order the sample fields will be visited each month.

Sometimes there are samples selected in more than one of a farmer's fields in the same tract. When this occurs there will be one sample kit for each sample field. Unless specifically instructed otherwise, the maximum number of samples to be laid out in any one field is four.

Sample Kit Forms

Form	Number of forms needed		
	Winter Wheat	Spring Wheat	Durum Wheat
Form A: Initial Interview	1 (A-1)	1 (A-2S)	1 (A-2D)
Form B: Field Counts	TX, OK, KS - 4 other States - 3	3	3
Form E: Post-harvest Gleanings	1*	1*	1*

* Only for sample numbers evenly divisible by 4 (i.e. 4, 8, 12, etc.)

Sample Field Kit Envelope

UNITED STATES DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURE STATISTICS SERVICE
Washington, D. C. 20250

Official Business

STATE _____ Crop _____

Variety _____
Sample Field

County _____

Segment No. _____ Tract and
Field Code _____

Lives in Segment? () YES () NO

LSF POID _____

Operator's Name _____

Address _____

Phone () _____

Expected Harvest Date _____

Sample Field _____

Pesticide Use Name _____

Schedule _____

NOTES: _____

FIELD SKETCH

SAMPLE UNIT LOCATION		
Sample No. ^{1/} _____ To be laid out _____		
(Month)		
	Unit 1	Unit 2
Rows/Paces along edge		
Paces into field		
Sample No. ^{1/} _____ To be laid out _____		
(Month)		
	Unit 1	Unit 2
Rows/Paces along edge		
Paces into field		
Sample No. ^{1/} _____ To be laid out _____		
(Month)		
	Unit 1	Unit 2
Rows/Paces along edge		
Paces into field		

1/ Additional sample in this sample field.

Guidelines for Completing the Questionnaire

1. Entries must be legible and made in black lead pencil.
2. Put all entries in the boxes provided. Note the preprinted decimal. **Do not write in** any bold outlined **office use box** unless instructed to do so.
3. Write notes in the margins or blank spaces to clarify or explain entries.
4. Record all acreage entries to the nearest tenth acre. If whole acres are reported, enter a zero to the right of the decimal point.

Military Time Conversion

Clock Time	Military Time
9:20 a.m.	0920
11:38 a.m.	1138
1:35 p.m.	1335
6:16 p.m.	1816

Locating the Sample Operators

You will be assigned several Wheat Objective Yield samples. These samples will be concentrated in one geographic area as much as possible. For some enumerators, all samples may be located in one small community, but for others travel into several counties may be required.

You will receive the name and address of all sample operators you are to contact. For winter wheat samples, you will have little additional information to help you locate the operator.

To aid you in locating and interviewing operators having spring or Durum wheat samples selected from the area frame, you will have a county highway map showing the location of the segment and an aerial photo with the segment outlined in red ink and the operator's tract drawn in blue pencil.

TURNING IN COMPLETED FORMS AND WHEAT SAMPLES

You will be working from your home, but in close contact with a supervisor. Much of your work will be **sent directly to the State office**. It is important that you review your work for each sample before sending it in. Be sure that all required data are entered and that you make notes fully explaining problems and all unusual situations. Always send in completed forms and samples **the same day** the work is done.

When you mail samples of wheat to the Regional Laboratory, verify that each sample is properly identified with a COMPLETED SAMPLE identification tag fastened to the **outside** of the paper bag.

The NAS-011 is your official record of time and mileage. This form must be filled out correctly and completely in order to get paid. The NAS-011 must be turned in to the State office at the end of each week. Refer to the NASDA Employee's Handbook and the back of the NAS-011 for instructions on completing this form.

Monthly Program

Survey Date	Work Begins	Forms to be completed		
		Winter Wheat	Spring Wheat	Durum Wheat
May 1	April 24	A-1 & B ¹		
June 1	May 25	A-1 & B ²		
July 1	June 24	B		
August 1	July 24	B	A-2S & B	A-2D & B
September 1	August 25		B	B
Post-harvest	within 3 days after harvest	E ³	E ³	E ³

¹ TX, OK - all samples; KS - even numbered samples only

² KS, OK, TX - remaining A forms, all B forms in all States.

³ Samples with numbers evenly divisible by 4 (i.e. 4, 8, 12, etc.)

May 1 Survey

TX, OK, KS: All sample fields in TX and OK, and even numbered samples in KS will be visited at this time. You will interview the person who operates the land in which sample fields are located and complete Form A-1 for each assigned sample. After each interview has been completed, you will lay out two units for each sample. Then you will make plant counts and measurements and record these observations on Form B.

June 1 Survey

1. TX, OK, KS: The work must be completed earlier in any fields that are to be harvested before the survey work week. You will interview any assigned farmers you were not able to contact during the May 1 Survey. For Kansas odd-numbered samples, complete the Form A-1. Complete Form B for all samples.
2. All Other States: All sample fields assigned to you will be laid out for the June 1 Survey. You will interview the person who operates the land in which sample fields are to be located and complete Form A-1 for each assigned sample. After each interview has been completed, you will lay out two units for each sample. Then you will make plant counts and measurements and record these observations on Form B.

July 1 Survey

The work must be completed earlier in June for winter wheat fields which will be harvested before the survey work week. A Form B will be completed for all samples, except those which were lost or samples from which heads were clipped within the count areas on the June 1 survey visit.

August 1 Survey

Make visits earlier in the month for fields which are expected to be harvested prior to the survey period.

1. Winter Wheat States

Some States will have a number of late maturing fields which had not reached the "Hard Dough" stage in time for the samples to be harvested during the July 1 Survey.

Therefore, you will make a visit during July (probably before the regular August 1 survey period) to complete a Form B for each of these samples. Your visit to the sample fields should be timed to occur when the fields are in the "Hard Dough" or "Ripe" (Code 6 or 7) maturity stages and as close to farmer harvest as possible.

It is very important that samples reach "Hard Dough" or "Ripe" stage before they are harvested.

2. Spring and Durum Wheat States

Initial visits are made for other spring and Durum wheat samples during the August 1 survey. You will interview the farmer and complete the Form A-2D or A-2S. You will make field observations for the samples assigned this month and use Form B to record your counts. However, make the visits earlier in the month for fields which are expected to be harvested prior to the survey period.

September 1 Survey

Complete a Form B for all spring and Durum wheat sample units not harvested. Make visits earlier in the month in areas where harvest is expected before the survey period.

Postharvest Survey

Postharvest gleaning Form E's are to be completed for every fourth sample (sample numbers evenly divisible by 4, (4, 8, 12, etc.) Keep in touch with the farmer so you will know a day or so before harvesting is completed in the sample field designated for postharvest observation. Then you should glean the sample units immediately after harvest so that they are not disturbed by birds and rodents or destroyed by plowing.

If not enough Form E's remain eligible after the initial interviews (because of a large number of screen outs or refusals), additional gleaning samples will be selected from the remaining sample fields. You will be notified of this by your NASDA supervisor and additional Form E's will be sent to you.

CHANGES FROM PREVIOUS YEAR'S SURVEYS

No changes to the forms

Enumerators working on the Wheat Objective Yield Survey should be familiar with the definitions of the terms listed below. Appendix A of the "Interviewer's Manual" should serve as a reference for definitions except for the ones footnoted below.

GENERAL TERMS

Field	POID
List Sample	Sample Field
Lost Sample	Segment
New Field <u>1</u> /	Starting Corner
Objective Yield Sample <u>1</u> /	Tract
Operator	Unit

New Field - A wheat field planted in the tract which did not have a chance of being selected in this (Durum or Spring) Wheat Objective Yield Survey.

Objective Yield Sample - Consists of two units which are always identified as Unit 1 and Unit 2. Each sample is identified by a unique number.

- NOTES -

GENERAL

The purpose of Forms A-1, A-2D and A-2S is to update the acreage of wheat expected to be harvested since the previous survey. These forms will also verify the sample field for the Objective Yield sample, determine acreage to be excluded when locating the sample units, obtain permission to locate sample and gleaned units in the field, and obtain information on whether or not the field is intended to be irrigated.

Form A-1 or A-2D or A-2S will be completed on the initial visit to all sample wheat fields.

Form A-1 will be used for all winter wheat samples to be visited. Form A-2D and Form A-2S will be used for Durum wheat and spring wheat other than Durum wheat, respectively.

The different forms used for this survey are printed on paper of different color for easier identification. You will notice that some spaces on the form have bold outlined boxes. These bold outlined boxes are for office use only and enumerators will not make entries in these spaces unless they are instructed to do so. Use only erasable pencils to complete all objective yield forms. Do not change, erase, or mark out any entries made by the State office. Before you begin an interview, review all forms so you know beforehand precisely what questions to ask the operator.

To avoid asking the operator duplicate questions during the initial interview, ask questions as follows:

Form A-1, Table A, Items 1 and 2 - once for each farm.

Forms A-2D and A-2S, Table A, Items 1 and 2 - once for each tract.

Forms A-1, A-2D and A-2S, Items 3 through 8 - once for each sample field. (Item 4 and 5 are excluded from Form A-2D. Item 5 is excluded from Form A-2S).

These questions provide the necessary initial interview data regardless of how many samples are located on the tract, farm or sample field. Shortly after the interview is over, copy data on the appropriate Form A-1, A-2D or A-2S for all samples.

When you start to work on a sample, be sure the label indicating State, operator identification number and sample number is on each form. If not, copy this information from the sample field kit envelope. Enter the date and time that you arrive at the farm for the interview. Use military time.

Refer to your NASDA Employees Handbook for additional explanation of military time.

Chapter 3

Initial Interview

Your first meeting with the operator is very important. Review the discussion of interviewing techniques in your NASDA Employees Handbook.

Introduce yourself and tell the operator that you are representing the (State) Agricultural Statistics Service (or official name used in your state) of the U.S. Department of Agriculture. Explain that the Agricultural Statistics Service is conducting a wheat yield survey and that this operation has been randomly selected for study. The purpose of this survey (see Chapter 1) is to estimate crop yields based on counts and measurements from small sample plots in selected fields and the operator's cooperation will be most helpful. Some of the operators you will contact had fields in the Objective Yield Survey in past years, so this will not be new to them.

On the front of Form A-1 and in the upper left of Forms A-2D and A-2S, there is a statement which briefly introduces the survey. Use a conversational tone in making the statement and answer any questions the farmer may have. The operator may wish to accompany you to see what you do in making field observations. This is fine, but work steadily and do not take too much of the farmer's time.

If the farm operator is not at home, arrange to call back. If the farm operator is not expected back during the survey period, you may obtain the required information from another informed person. In the event no informed person can be found to give the information during the survey period, contact your supervisor. Do not enter wheat fields without permission.

If not completed at the time of the first visit, Form A-1, A-2D, or A-2S should be completed during the next survey period. However, you should make an effort to complete these forms during the assigned survey period.

The data you obtain for the A-1, A-2D and A-2S interviews are similar but you must understand the basic differences to effectively conduct the interview. Form A-1 will be used for all winter wheat initial interviews.

For Form A-1, interviews of growers selected from the March Agricultural Survey, you will **not** have an aerial photo. The acreages on this form pertain to the grower's entire operation. The State office will have entered acres of winter wheat on the entire farm reported earlier, but no data by fields are available prior to your visit. For Form A-1 interviews, you will use the objective yield grid map to sketch the location of winter wheat fields on the farm and select the sample field(s). Winter wheat acreages in Table A, Item 1 pertain to the entire operation.

The Forms A-2D and A-2S are used for area frame sample operators. The aerial photo will be used in conjunction with Forms A-2D and A-2S. Durum or Spring Wheat acreages in Table A, Items 1 and 2 pertain to the June Agricultural Survey. Tract and field wheat acreages as reported on the JAS were entered before you received the Form A-2D or A-2S. The sample field was also selected and is indicated on the form.

All acreage recorded on the Form A-1, A-2D or A-2S must be recorded to the nearest tenth of an acre. For Example:

Reported	Enter	
25	25.0	
25.25	25.3	(When rounding a 5, always round up)
25.12	25.1	
25.75	25.8	(When rounding a 5, always round up)
25.68	25.7	
None	(-)	

FORM A-1

You will use Form A-1 for the initial interview of all winter wheat growers selected. Items 1 and 2 pertain to winter wheat acreage on the entire farm and Items 3-8 pertain to the sample field.

The name and address of the selected operation you are to contact has been entered on the field kit envelope and Form A-1. It is very important that you verify this information. Any changes in name and address such as spelling, box or route number, ZIP code, etc., should be corrected on the field kit envelope and on the Form A-1.

Chapter 3

Initial Interview

If the operation is known by a farm, ranch or business name, this should also be noted. Listed below are examples of common corrections which should be made:

<i>Mayes</i>	
Hayes , Arthur	Codley, John
Rt. 1	Rt. 1, Box 608
Red Oakes, YS 46725	Pinetown , YS 54670
	<i>Bear Poplar</i> 54690
<i>Bob</i>	
Sanders, Tom and Rob	Flying J. Ranch
No. 2 Cove Road	MGR Merle King <i>Bob Gray</i>
Jamesville, YS 46652	Rt. 1 Box 608
	Edenton, YS 46647
<i>Ridgeview Farms, Inc.</i>	
<i>SOLD</i> Twin Ranch	Paul Gum
MGR Tony Mills	R.R. 5
Evergreen, YS 46104	Elkin, YS 46520 <i>Farm</i>
	Farm name - Hill High Ranch

The operator may have changed the acreage of winter wheat to be harvested since intentions were reported during the March Agricultural Survey. This will mean that Item 2 will differ from Item 1. Never change Item 1, but write notes so that the office staff understands the situation.

Example 1: The operator does not currently operate the entire acreage reported as winter wheat in March. For example, part or all of the land was sold, leased, or rented to someone else.

Procedures:

1. Include the land that has changed hands in with the original operator's acreage as you complete the grid, Table A, and Item 2. The original operator should be able to supply this information.
2. Select the sample field(s) based on the complete acreage in Table A. If the sample field(s) is controlled by the original operator, obtain permission to enter the field. If the sample field is now operated by a different person, you will need to contact this new operator for permission.
3. Obtain the name, address and phone number of the new operator regardless of whether you need to make contact on this survey.

Example 2: The operator currently operates more land than in March. The additional land, bought or leased, may have wheat seeded on it already.

Procedures:

1. Exclude this new acreage when you complete the grid, Table A, and Item 2.
2. Select the sample field(s), and proceed with interview.

Example 3: The operator still operates the land reported in March and has not acquired additional acreage. The difference between Item 1 and Item 2 is due to 1) a respondent or enumerator error on the March Agricultural survey or 2) the actual plantings changed from the intentions reported earlier.

Procedures:

1. Complete the grid, Table A and Item 2 based on current acreage.
2. Do not change Item 1, even if you determine that the figure is in error. Write notes.

Record the date and starting time on the face page of the Form A-1.

1. Earlier this season, you had intended to harvest Acres
acres of winter wheat on all the land you operate.

101

(Do not change)

The total acres harvested in the grower's entire operation as identified on the face page has been entered in Item 1. Do not change this entry for any reason. You should verify this acreage by listing each field separately in the table.

Now, I need to locate all of your winter wheat fields and obtain the acreage in each field. This will be used to randomly select one or more of your fields for objective yield observations.

This statement will serve as an introduction to Items 1(a) through 1(c). The main reason for mapping the entire operation by fields is to have a uniform way of numbering the fields and to have an unbiased method of selecting the sample field.

Item 1 (a) - Draw each winter wheat field on the grid map. See page 319.

The purpose of the grid is to assure accurate location of each winter wheat field on all the land operated. Start with any field the operator chooses, and identify each winter wheat field the operator has with the number of acres in the field. You should sketch any roads and natural boundaries that will help the operator keep track of the fields. Use of a county

highway map in conjunction with the grid map may help the operator also. Scale is not important; however the relative location is critical. The northernmost field should be at the top of the grid and the westernmost field on the left. You may want to start by locating the homestead in the grid.

If you have problems drawing the grid map because the farmer has too many fields spread out over many counties, call your Survey Statistician for instructions.

Item 1 (b) - Number fields; north to south -- west to east.

Number the northernmost field first. If two fields are the same distance north, number the field on the west (left side) first. Should a grower's operation require two or more maps, arrange the maps geographically and number fields consecutively through all maps. Place grid map(s) in sample field kit envelope when finished.

Item 1 (c) - Requires entries in Table A, Columns 2-5.

For each field record the data required in Table A:

1. Total Acres in Field (Column 2): Record all acreage in the field. Be sure to match the field number assigned on the grid to the field number in Table A.
2. Acres in Other Uses: Columns 3 and 4 are used to indicate any areas in the field from which winter wheat will not be harvested. If a field was overseeded with spring wheat, it is still considered to be winter wheat. If the field was completely tilled up and replanted to spring wheat, the field is considered spring wheat and would be recorded in Columns 3 and 4.
3. Acres to be Harvested for winter wheat and Accumulated (Column 5): Now record the acres of winter wheat that will be harvested. Exclude acres in Column 4, thus $\text{Column 5} = \text{Column 2} - \text{Column 4}$. Accumulate the acreage to be harvested, field by field, to a total for the entire operation.

The accumulated acres for the first field is just its acres for harvest. The accumulated acres for each subsequent field equals its acres for harvest plus the accumulated acres for the preceding field.

Table A

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain, (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total
		USE	ACRES	
1	2	3	4	5
1	25 0	Not Seeded	3 0	22 0 Cum. 22 0
2	16 0	Not Seeded	1 0	15 0 Cum. 37 0
23	10 0	Winter Kill	1 0	9 0 Cum. 207 0
24				Cum. —

2. The total acres of winter wheat (last cumulative entry) for harvest
on the land you operate is

Acres

102

207 0

IS THAT RIGHT? YES -- Continue. NO -- Review all fields, correct Table A and Item 2.

IF ITEM 2 HAS A ZERO entry -- Return all forms AN ACREAGE entry -- Make selection of sample field(s).

If the respondent answers yes, enter acres in answer box and select the sample field(s).

If the respondent answers no, first check your addition. If the acreages are added correctly, determine where the error was made in obtaining the field acreages. Make the necessary corrections, then go to Table B to select the sample field(s).

If Item 2 is "zero", conclude interview and return all forms with notes of explanation.

Table B - Form A-1

SELECTION OF SAMPLE FIELD(S) ON THIS FARM		
Sample Number(s)	Selected Acre(s)	Selected Field Number(s)
65	58 0	3

(a) Select first field in Table A in which the cumulative harvested acres equals or exceeds the selected acre for sample use shown in Table B.

(b) Enter selected field number in Table B.

(c) Circle selected sample field number in Table A. Enter field acreage (Column 5) in Item 3.

Chapter 3

Initial Interview

You select a sample field for each sample number listed in Table B, Form A-1. The sample number and selected acre for each sample have been entered by the State office. The selected field is the first field whose accumulated total is greater than or equal to the selected acre. For each of these samples, two units will be located, laid out and observations made.

The sample number and selected acre will determine in which field(s) the sample(s) will be laid out. Large fields may have more than one sample selected for the field. If only one field is listed in Table A, that field will automatically become the sample field.

After selecting the sample field, you will complete the interview by asking Items 3-8 for each sample field using Form A-1.

To select the sample field:

- a. Select the first field in Table A in which the accumulated harvested acres equal or exceed the selected acre for that sample shown in Table B.
- b. Enter selected field number in Table B.
- c. Circle the selected sample field number in Table A. (Sample number for the field circled in Table A must be the same number as shown on ID label of Form A-1).
- d. For additional samples shown in Table B, repeat steps a, b and c above. Step c will be completed on a separate Form A-1 with the appropriate sample number.

Example: Table B for our example shows how two samples will be laid out for the operation. Select the field for sample number 24 first--this will be the first field listed in Table A for which the accumulated acres equal or exceed 156.

You select field number 14 for laying out Sample 24. Enter field number 14 in Table B opposite Sample 24. Circle field number 14 in Table A on the Form A-1 for Sample 24. Enter 14.0 acres in Item 3 of Form A-1 for sample 24.

Important: Circle only one sample field number on a questionnaire.

Now select the sample field for Sample 25. The selected acre is 289 and the first field for which the accumulated acres equal or exceed the selected acre is field number 17. Enter this number in Table B on Sample 24, Form A-1. Circle the field number in Table A on Sample 25, Form A-1. Enter 28.0 acres in Item 3 of Form A-1 for Sample 25.

TABLE A

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain, (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total
		USE	ACRES	
1	2	3	4	5
13	30 0	Bare Spot	2 0	28 0 Cum. 150 0
14	14 0			14 0 Cum. 164 0
15	50 0		3 0	47 0 Cum. 211 0
16	75 0		5 0	70 0 Cum. 281 0
17	28 0			28 0 Cum. 309 0
18				— Cum. —
19				— Cum. —
20				— Cum. —
21				— Cum. —
22				— Cum. —
23				— Cum. —
24				— Cum. —

2. The total acres of winter wheat (last cumulative entry) for harvest on the land you operate is Acres

102 309 0

IS THAT RIGHT? YES -- Continue. NO -- Review all fields, correct Table A and Item 2.

IF ITEM 2 HAS A ZERO entry -- Return all forms. An ACREAGE entry -- Make selection of sample field(s).

TABLE B

SELECTION OF SAMPLE FIELD(S) ON THIS FARM		
Sample Number(s)	Selected Acre(s)	Selected Field Number(s)
24	156 0	14
25	289 0	17

(a) Select first field in Table A in which the cumulative harvested acres equals or exceeds the selected acre for sample as shown in Table B.

(b) Enter selected field number in Table B.

(c) Circle selected sample field number in Table A. Enter field acreage (Column 5) in Item 3.

SELECTED ACRES LARGER THAN ACCUMULATED ACRES

Special instructions for when the selected acre is larger than the accumulated acres for the farm follow.

When only the last "selected acre" entry exceeds the accumulated acres on a farm, the last field listed in Table A becomes the sample field. Use the original selected acre for all other samples selected for this operation.

When two or more "selected acre" entries exceed the accumulated acres on the farm, adjust all entries in Table B before selecting any sample field. Use the following formula:

$$\text{Item 2} / \text{Item 1} = \text{Ratio (three decimal places)}$$

$$\text{Ratio Each Selected Acre} = \text{Adjusted Selected Acre (Round to whole number)}$$

Show computations for adjusting the selected acres entries on the margin of Form A-1. Enter adjusted selected acres in parentheses to the left of the original selected acre in Table B of Form A-1. Use adjusted selected acres to select sample fields. Only make adjustments to the selected acres in Table B. Do not adjust the acres in Table A.

Example: The selected acres in Table B are more than the accumulated acres for the farm (Table A and Table B on the following pages). This could have happened because of heavy abandonment, error in earlier acreage reporting or for a variety of other reasons.

To select sample fields, follow the instructions given above. Item 2 (acres now) divided by Item 1 (acres reported earlier in season) would be $75/200 = .375$. Then $.375 * 79 = 30$ and $.375 * 183 = 69$. Fields 2 and 3 would then be designated sample fields for samples 15 and 16, respectively.

FORM A-1: WINTER WHEAT (Continued)

Page 2

1. Earlier this season, you had intended to harvest Acres 101 200 0
acres of winter wheat on all the land you operate.

Now, I need to locate all your winter wheat fields and obtain the acreage in each field. This will be used to randomly select one or more of your fields for objective yield observations.

(Do not change)

- (a) Draw each winter wheat field on grid map.
- (b) Number fields; north to south -- west to east.
- (c) For each field record the data required in Table A, Column 2 thru 5.

(Column 5) Accumulate the acreage to be harvested, field by field, to a total for the entire operation. Note that the cumulative acreage for the first field will be the same as the acreage in that field. The cumulative acreage for the second field equals the first field cumulative acreage plus the second field acreage for harvest.

TABLE A

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain, (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total
		USE	ACRES	
1	2	3	4	5
1	25 0		3 0	22 0 Cum. 22 0
2	17 0			17 0 Cum. 39 0
3	36 0			36 0 Cum. 75 0
4				Cum. —
5				Cum. —
6				Cum. —
7				Cum. —
8				Cum. —
9				Cum. —
10				Cum. —
11				Cum. —
12				Cum. —

Chapter 3

Initial Interview

FORM A-1 WINTER WHEAT (Continued)

TABLE A (Continued)

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain. (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total
		USE	ACRES	
1	2	3	4	5
13				Cum.
14				Cum.
15				Cum.
16				Cum.
17				Cum.
18				Cum.
19				Cum.
20				Cum.
21				Cum.
22				Cum.
23				Cum.
24				Cum.

2. The total acres of winter wheat (last cumulative entry) for harvest on the land you operate is

Acres

102

75 0

IS THAT RIGHT? YES -- Continue. NO -- Review all fields, correct Table A and Item 2.

IF ITEM 2 HAS A ZERO entry -- Return all forms. An ACREAGE entry.. make selection of sample field(s)

SELECTION OF SAMPLE FIELD(S) ON THIS FARM			
Sample Number(s)	Selected Acre(s)		Selected Field Number(s)
15	(30)	79 0	2
16	(69)	183 0	3

(a) Select first field in Table A in which the cumulative harvested acres equals or exceeds the selected acre for sample as shown in Table B

(b) Enter selected field number in Table B

(c) Circle selected sample field number in Table A. Enter field acreage (Column 5) in Item 3

200 $\overline{) 75.000}$
 600
 1500
 1400
 1000
 1000

.375
 79
 3375
 2625
 29.625

.375
 183
 1125
 3000
 375
 68.625

FORMS A-2D AND A-2S

The Forms A-2D (Durum Wheat) and A-2S (Spring Wheat) are used for area frame sample operators. The aerial photo will be used in conjunction with these forms. Durum or Spring Wheat Items 1 and 2 pertain to the tract as outlined in blue pencil on the photo for the June Agricultural Survey. Tract and field Durum or Spring Wheat acreages, as reported on the June Survey, were entered before you received Forms A-2D or A-2S. The sample field was also selected and is indicated on the form with a (##).

Items 1 and 2 pertain to Durum or Spring Wheat fields in the selected tract and Items 3-8 pertain to the sample field.

The tract of land that was surveyed in June as drawn on the aerial photo in blue and given a tract code letter is the land area that **MUST** be accounted for.

If the person in charge of the tract has changed since June, you must locate the new operator. Although you will be interviewing a different person, the tract size and its boundaries must remain the same unless an error in tract identification was made in June. Make name and address corrections on the field kit envelope and note on the Form A-2D or A-2S.

The total acres of Durum or Spring Wheat reported as seeded on the June Agricultural Survey have been entered on the questionnaire. Do not change this entry.

JAS SEEDED TRACT ACRES

1. In early June, it was reported you had seeded or intended to seed
acres of Durum wheat for grain in _____ fields in this tract.

101	75.0
-----	------

SHOW operator his tract and fields on PHOTO. Verify the
fields and the acreages of Durum wheat planted in the tract and
entered in Table A.

(Do not Change)

Be familiar with and follow the instructions on the Form A-2D or A-2S regarding use of the photo, locating fields and determining acreage planted and for harvest. Always complete Table A even when no wheat was planted or when there is none for harvest as grain. In this way the proper corrections can be made to these acreages.

Chapter 3

Initial Interview

TABLE A

FIELD NUMBER (Sample field number has ##.)	TOTAL ACRES IN FIELD		ACRES of DURUM WHEAT SEEDED as reported in JUNE		Acres in USES or CROPS OTHER THAN DURUM WHEAT to be harvested for grain (For example: not seeded, other spring, bare spots, waterways, roads, other crops, etc.)		ACRES OF DURUM WHEAT TO BE HARVESTED FOR GRAIN (Col. 2 minus Col. 5)
					USE	ACRES	
1	2		3		4	5	6
B-2 ##	21.0	. ____	21.0	. ____			21 0
B-4	35.5	. ____	34.0	. ____	Drowned out waste	1.5 6.5	29 0

Verify the fields and acreage of wheat which were actually seeded in this tract. Make necessary corrections to the right of the preprinted data of the table and record "use" for acres in other uses in Column 4. When a correction is made, update or verify all entries for that field. The aerial photo that you will use for the survey will show the field boundaries that were reported on the June Agricultural Survey. If another field in the tract was planted to wheat, you are to draw in (use red pencil) the boundaries of the additional field on the photo and assign it the next unused field number. Record data for the new field on the right one-half of the next unused line in Table A. Enter all acreages to the nearest tenth of an acre.

Columns 4 and 5 must be used to indicate any areas in the field from which wheat will not be harvested for grain. Some examples of this are: areas not seeded, bare spots, waterways, roads, other crops, etc. Write in Column 4 the use of the acreage and enter the acreage to the nearest tenth of an acre in Column 5. Mark the photo to indicate areas not for harvest as grain. These should be known areas that the operator can deduct from the acres for harvest. Mark them with an "X" and write a note on the photo to aid you in laying out the sample.

If a field was originally seeded to Durum or Spring Wheat, but was later reseeded to another grain, the field is now considered to be seeded to the other grain crop or to mixed grain. Make the necessary entries in Columns 4 and 5. Always write in the name of the "Other Crop" or "USE".

Now record the acres of wheat that will be harvested for grain in the "Acres to be Harvested for Grain" (Column 6). Column 6 should equal Column 2 minus Column 5.

Do not change any of the **preprinted entries** in the table.

Important: Forms A-2D for Durum Wheat and A-2S for Spring Wheat refer only to those kinds. When completing Item 1, Table A and Item 2, ask probing questions when necessary to eliminate any misunderstanding about the kind of wheat. **Be especially careful in areas where you know farm operators may seed more than one kind.**

2. The total DURUM WHEAT acreage (Column 6) to be harvested for grain is Acres 102 69 0
Verify that the ACREAGE is correct. IF NOT, RE-ADD.

Sum Column 6 of Table A to the Item 2 box. Enter acres for harvest as grain to the nearest tenth of an acre. Ask the respondent if that is the correct acreage for the tract. If "YES", continue, if "NO", review the wheat acreage in each field with the respondent, correct Table A entries and re-add Column 6. The operator must agree that the tract acreage for harvest as grain is as correct as possible.

IF ITEM 2 HAS {
-- A ZERO entry --Return all forms.
-- An ACREAGE entry -- TURN PAGE

This instruction at the bottom of the Form A-2D or A-2S face page is most important. Whenever Item 2 is **zero** and there are no acres of wheat for harvest in the tract, send all Forms to the State office. No samples will be laid out as there is no wheat for harvest as grain.

Important: If no wheat was seeded in the sample field (Form A, Column 3 = zero), conclude the interview unless a new field was listed in Table A. A new field is a wheat field planted in the tract which did not have a chance of being selected in this wheat (Durum, spring) objective yield survey area frame sample. If you listed a new field in Table A, then this new field becomes the sample field. The sample field must be located within the same tract. The acreage for grain should be recorded in the Item 3 answer box. (Copy from Table A, Column 6). The remaining questions refer to the new sample field. If two or more new fields were listed in Table A, select the new field that is physically nearest to the originally designated field.

Remember, if the original field selected was not seeded, only a new field may be selected as the sample field.

Make sure the farmer understands which field is the sample field. It may be necessary to point out the field on the ground or describe its location in terms of other physical features. It is important that you and the farmer are talking about the same field. In all cases, the number of acres entered in Item 3 should agree with the acreage for that same field as entered in Table A, Column 6.

Item 3 and questions 4 - 7 will be the same on Forms A-1, A-2D, and A-2S.

3. Copy acres of Durum wheat for harvest (Column 6) in Sample Field
Number 62 from Table A..... Record acres or "0" Acres 103 21 0

Chapter 3

Initial Interview

Item 3 is not to be asked but will be copied from Table A, Column 6 (Column 5, winter wheat). The sample field is designated by ## in Column 1 of Table A. The sample field's tract and field number should be entered in the blank. The acres to be harvested for grain in the sample field should be copied from Table A, Column 6 (Column 5, A-1) and entered in the answer box.

Is Item 3 entry greater than zero?

() YES () NO → Conclude interview, record ending time,
↓
return all forms (except Form D).

A zero entry for Item 3 will mean there was no wheat acreage for harvest for grain in the selected sample field and no new field was available. No sample will be laid out. Whenever there is a valid acreage for harvest for grain in Item 3, continue with Item 4 to obtain more information regarding the sample field.

Item 4 appears on Form A-1 and A-2S.

4. What class of wheat was seeded in this Sample Field Number _____? Enter Code 104
Hard Red Winter = 1 Soft Red Winter = 2 White Winter = 3

Enter code of the class of wheat that was seeded in the sample field. This question will not be asked for Durum wheat.

Item 5 appears on Form A-1.

5. Washington Only:

What variety of wheat was seeded in this Sample Field Number _____

Enter the variety of wheat that was seeded in the sample field. This question is asked only in Washington and only for Winter Wheat.

6. Has this field been (or will it be) irrigated () YES = 1, () NO = 2 Enter Code 105

If water was applied to the field, either before or after seeding, or if the farmer intends to apply water, the field is to be considered irrigated. Check the appropriate box YES (1) or NO (2) and enter the proper code in the answer box.

7. "With your permission I will go out to the field and mark off two small plots to be used in making stalk and head counts. I will return to the plots each month until harvest to make counts and clip a few heads to determine their size and weight. Would that be all right?"

☐ YES

☐ NO
↓

Conclude Interview
and return all forms.



Continue. If this is a gleanings sample, tell the operator, "After harvest, I will also lay out two small plots to determine harvest loss."

This item is designed to ask permission to lay out sample units. If the operator refuses permission to lay out sample units, and gleanings samples, return all forms.

Do not enter sample fields without permission. Check the appropriate YES or NO response.

8. Have you or will you apply pesticides with organophosphorous content to the sample field?

☐ YES ☐ DON'T KNOW ☐ NO

If YES, enter latest application date _____ and name of pesticide _____

Record the response here and on the kit envelope and Form B. If YES, record the date of the latest application or the expected application date and the name of the organophosphorus pesticide. If the operator does not know, try to obtain an intended application schedule and contact the dealer for the specific pesticide name. See Chapter 1 for pesticide safety instructions.

Thank the operator for his/her time and cooperation.

Be sure to give the operator a copy of the Reporting Burden Statement at this time.

IMPORTANT: Review this form for completeness. Record ending time and sign name. Record Item 8 onto Form B and the sample kit envelope.

Enumerator _____

Ending Time (Military Time)	172
Enumerator Number	190
Supervisor Number	191
STATUS CODE	180

Important: Enter at the bottom of the page the time the Form A-1, A-2D or A-2S was completed. **Review the form in detail** to be sure all items are complete. Sign your name and enter your number and your supervisor's number.

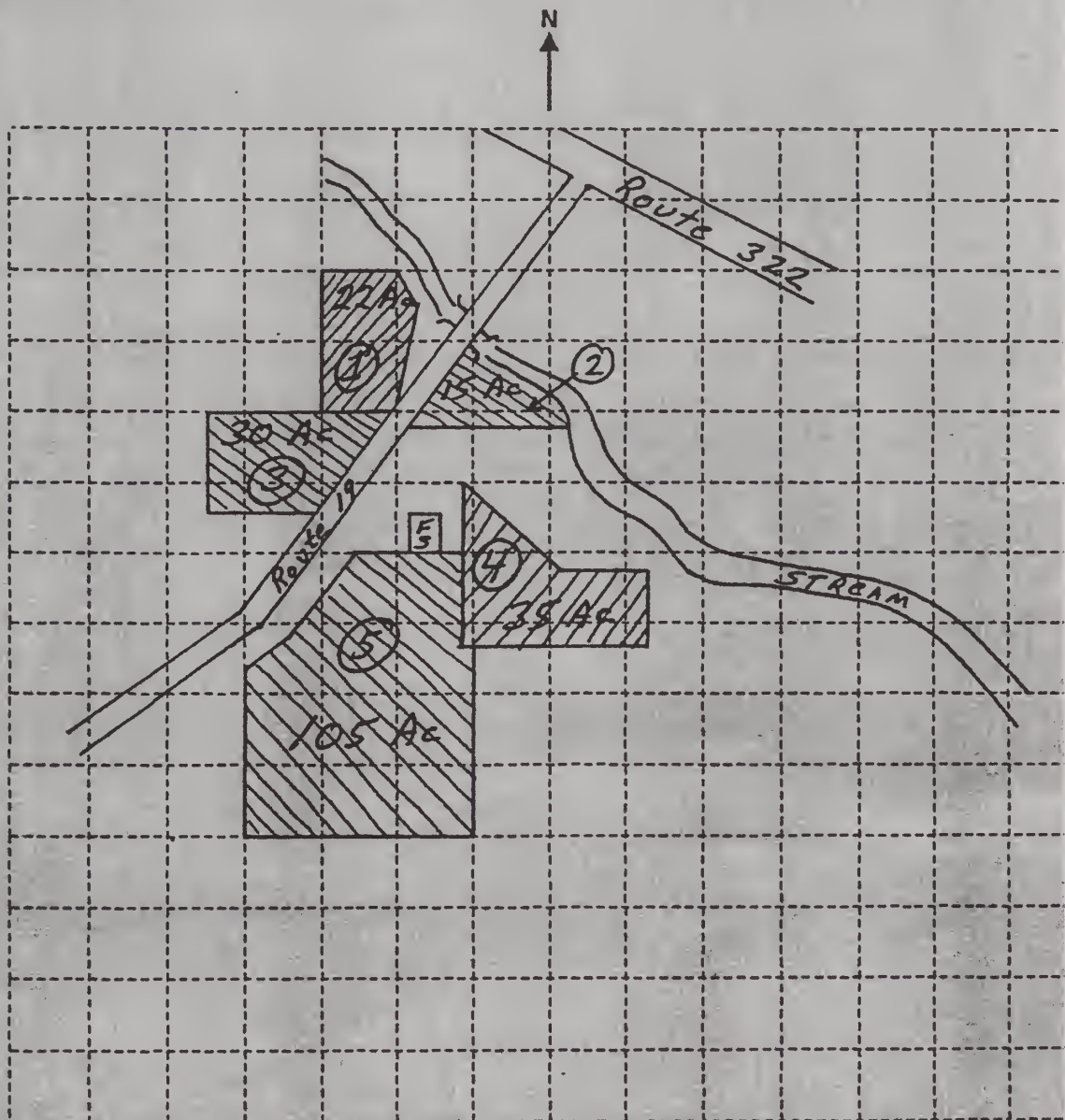
After the interview has been completed record Item 8 onto Form B and the sample kit.

Wheat
(Crop) OBJECTIVE YIELD GRID MAP

OPERATOR'S NAME Farley R. Wood COUNTY Butler

ADDRESS RR. 4, Box 135 SAMPLE NUMBER 0038

Meadville



Chapter 3

Initial Interview

UNITED STATES DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURAL STATISTICS SERVICE

Form approved
O.M.B. Number 0535-0088
Approval Expires 10/31/05
Project Code 101
QID-120031a-1W

FORM A-1: WINTER WHEAT YIELD SURVEY - 2003
INITIAL INTERVIEW

YEAR,CROP,FORM,MMDD (1-7)	STATE	ID NO.	SAMPLE
311----	3201	830081350	065

Earlier this season you gave a representative from our office information about the winter wheat acreage on your farming operation. We are now collecting information to help determine winter wheat production in (Your State) and the United States. Response to this survey is voluntary; however, we need and appreciate your cooperation. Any data reported by you or obtained from field observations will be kept confidential.

Date (0528)

Starting Time (Military Time).....

171 0900

FORM A-1: WINTER WHEAT (Continued)

Page 2

1. Earlier this season, you had intended to harvest Acres of winter wheat on all the land you operate.

101 210 0

(Do Not Change)

Now, I need to locate all your winter wheat fields and obtain the acreage in each field. This will be used to randomly select one or more of your fields for objective yield observations.

- (a) Draw each winter wheat field on grid map.
- (b) Number fields; north to south -- west to east.
- (c) For each field record the data required in Table A, Column 2 thru 5.

(Column 5) Accumulate the acreage to be harvested, field by field, to a total for the entire operation. Note that the cumulative acreage for the first field will be the same as the acreage in that field. The cumulative acreage for the second field equals the first field cumulative acreage plus the second field acreage for harvest.

TABLE A

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain. (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total	
		USE	ACRES		
1	2	3	4		5
1	25 0	Not Seeded	3 0	Cum.	22 0
2	16 0	Not Seeded	1 0	Cum.	15 0
3	30 0		0	Cum.	37 0
4	35 0		0	Cum.	30 0
5	107 0	Road and Bare Spot	2 0	Cum.	67 0
6	—		—	Cum.	35 0
7	—		—	Cum.	102 0
8	—		—	Cum.	105 0
9	—		—	Cum.	207 0
10	—		—	Cum.	—
11	—		—	Cum.	—
12	—		—	Cum.	—

Chapter 3

Initial Interview

FORM A-1: WINTER WHEAT (Continued)

Page 3

FIELD NUMBER	TOTAL ACRES IN FIELD	Acres in USES or CROPS OTHER THAN WINTER WHEAT to be harvested for grain, (For example: not seeded, bare spots, winter kill, waterways, roads, other crops, etc.)		ACRES OF WINTER WHEAT TO BE HARVESTED FOR GRAIN Cum = Cumulative Total
		USE	ACRES	
1	2	3	4	5
13				Cum.
14				Cum.
15				Cum.
16				Cum.
17				Cum.
18				Cum.
19				Cum.
20				Cum.
21				Cum.
22				Cum.
23				Cum.
24				Cum.

2. The total acres of winter wheat (last cumulative entry) for harvest on the land you operate is Acres

102

207 0

IS THAT RIGHT? YES -- Continue. NO -- Review all fields, correct Table A and Item 2.

IF ITEM 2 HAS A ZERO entry -- Return all forms An ACREAGE entry -- Make selection of sample field(s).
Table B

SELECTION OF SAMPLE FIELD(S) ON THIS FARM		
Sample Number(s)	Selected Acre(s)	Selected Field Number(s)
65	580	3

(a) Select first field in Table A in which the cumulative harvested acres equals or exceeds the selected acre for sample as shown in Table B.

(b) Enter selected field number in Table B.

(c) Circle selected sample field number in Table A. Enter field acreage (Column 5) in Item 3.

FORM A-1: WINTER WHEAT (Continued)

Page 4

All questions on this page apply to the SAMPLE FIELD ONLY.

3. Acres of winter wheat to be harvested for grain in Sample Field Number 3 Acres

103	<u>30.0</u>
-----	-------------

4. What class of wheat was seeded in this Sample Field Number 3 Enter Code

104	<u>2</u>
-----	----------

Hard Red Winter = 1 Soft Red Winter = 2 White Winter = 3

5. Washington Only:

What variety of wheat was seeded in this Sample Field Number _____

6. Has this field been (or will it be) irrigated? () YES = 1, (✓) NO = 2 Enter Code

105	<u>2</u>
-----	----------

7. With your permission I will go to the field and mark off two small plots to be used in making stalk and head counts. I will return to the plots each month until harvest to make counts and clip a few heads to determine their size and weight. Would that be all right?

YES (✓)

NO ()



Conclude Interview
and return all forms.

Continue. If this is a gleanings sample, tell the operator, "After harvest, I will also lay out two small plots to determine harvest loss".

8. Have you or will you apply pesticides with organophosphorous content to this field?

() YES

(✓) DON'T KNOW

() NO

If YES, enter latest application date _____ and name(s) of pesticide _____

Respondent Name Tom Jones

IMPORTANT: Review this form for completeness. Record ending time and sign name. Record Item 8 onto Form B and the sample kit envelope.

Enumerator M. Collins

Ending Time (Military Time)

Enumerator Number

Supervisor Number

Status Code

172	<u>0940</u>
190	<u>310</u>
191	<u>110</u>
180	

- NOTES -

GENERAL

Form H, Field Crops Chemical Use Survey will NOT be done this year in conjunction with the Objective Yield survey.

- NOTES -

GENERAL

Two units are laid out for each sample at the time of the initial interview. These units will be used each month during the growing season to make plant and fruit counts. The units are located and laid out according to specific procedures to assure randomness. First locate the selected sample field using the grid map, aerial photo, County and State maps.

For Winter Wheat samples, immediately after completing the Form A-1 interview and before going to the sample field, determine the paces to be used for locating the units. To do this, find the appropriate field size on the labels on the back of your field kit envelope. The acres of winter wheat for harvest in Item 3, Form A-1 determines which column is to be used. Circle the unit location numbers under the appropriate field size on the labels. The rows line corresponds to the paces along the edge of the field and the paces line corresponds to the paces into the field. Copy these unit location numbers to all Form B's and the Form E for the sample.

For subsequent sample locations, use the next set of unused labels. Circle the numbers as they are used. There is one set of labels for every sample selected for an operation. Unit locations have been entered by the State office for all winter, durum and other spring wheat samples.

Record the date in the space provided at the top of the Form B.

LOCATION, LAYOUT AND MARKINGS

The principle of unit location is to allow the units to fall anywhere within the field boundaries (excluding deducted acreage from Forms A-1, A-2D, A-2S) with equal probability. See examples in Special Problems (Chapter 5). Therefore, the point of entry into the field will be the first corner of the field reached when approaching the field. If the field has more than one sample, the second (third, etc.) closest corner following this principle will be used as the starting point for the second (third, etc.) sample number. The steps outlined below and the illustrations in this section should be followed in complete detail when locating, laying out and marking sample units.

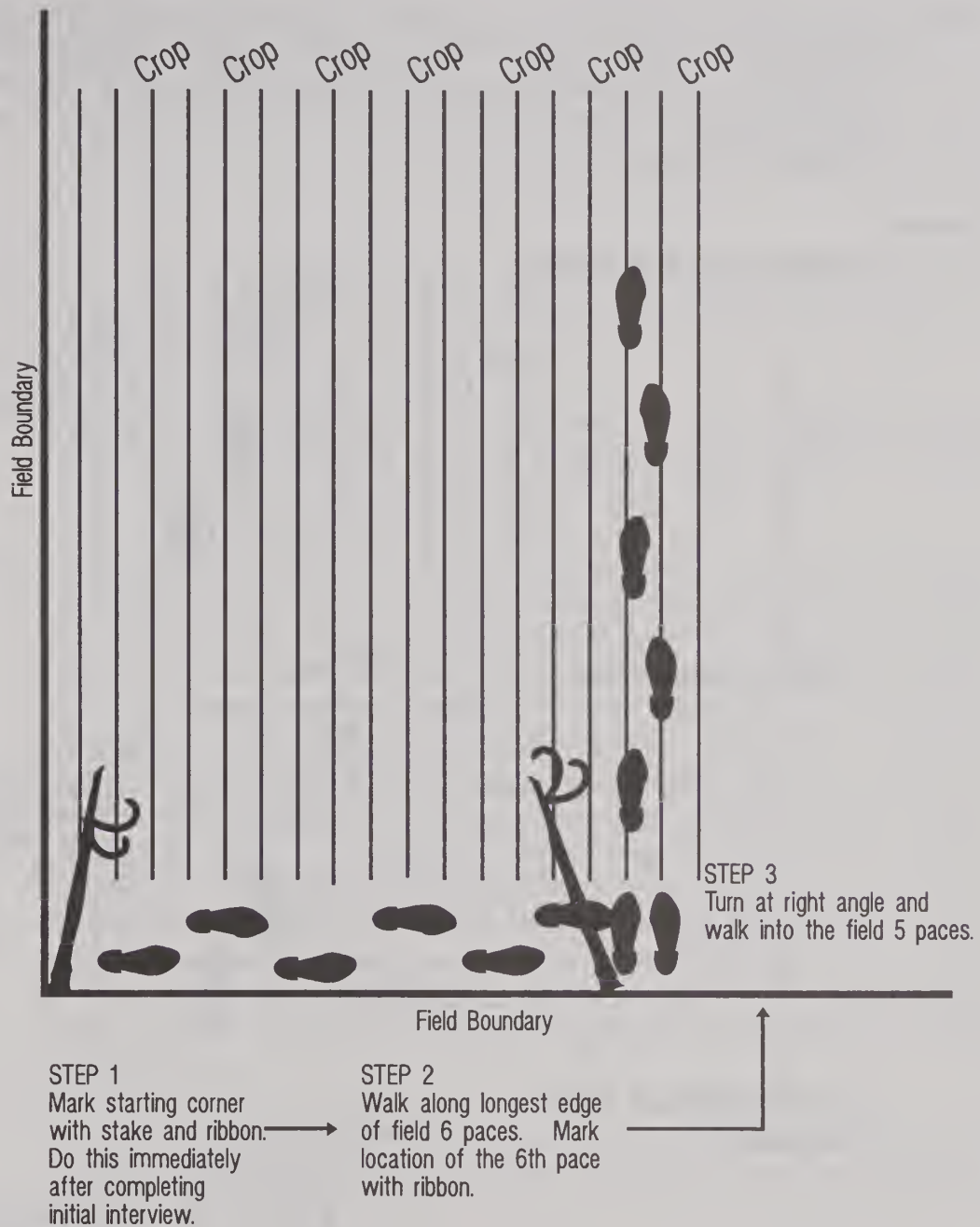
Step 1: Mark the starting corner so it will be clearly visible on later visits. Tie a piece of plastic flagging ribbon to the fence or some nearby object or drive a tall stake in the ground and attach the ribbon. Make a note of the location and type of marking used on the kit envelope field sketch.

Step 2: Start your count of paces one and one-half feet outside the plowed edge of the field. You should walk parallel to the longer side of the field for the number of paces shown on the Form B under Unit 1 opposite "Number of paces along edge

of field." When you reach the last pace shown on the Form B, tie a piece of flagging ribbon to the fence or nearby object for easy location on later visits.

Step 3: Turn at a right angle, pick out a point of aim and walk **into** the field the required number of paces. Start your count of paces one and one-half feet outside the plowed edge of the field.

Important: If you cross any of the areas deducted in the "other uses" Column 4 of Table A, Form A-1, or column 5 of Table A, Form A-2D or A-2S, while you are counting your paces into the field, stop counting the paces at the start of each such area and resume counting at the other side. Any blank or unplanted areas in the field that are not deducted on the Form A-1, A-2D or A-2S should be included in the pace count.

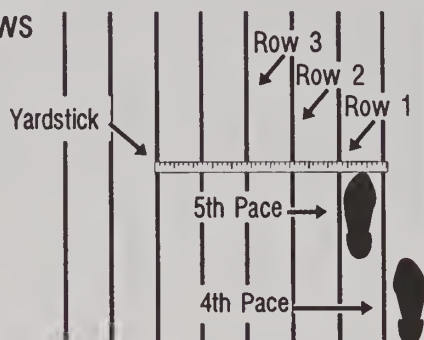


Step 4: After you have taken the last of the required paces, place a yardstick so that it touches the toe of your shoe and crosses the three drill rows just beyond your toe or to the left of your toe, depending on the direction of the rows at that point. If no drill rows can be distinguished, see Broadcast Procedures Chapter 5, and the illustration for Step 4.

Example:

Walking with Crop Rows

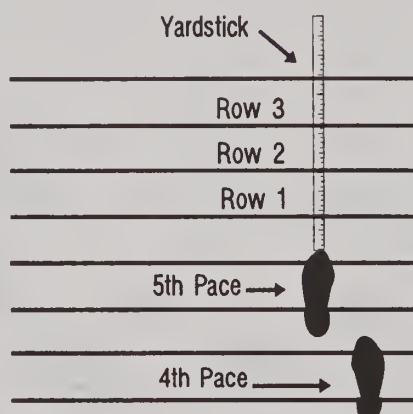
Or



STEP 4
Lay Yardstick down
at the end of toe
crossing 3 drill rows
to your left.

Walking Across Rows

Or



STEP 4
Lay Yardstick down
at the end of toe
crossing 3 drill rows
beyond toe.

**No Distinguishable Rows
(Broadcast)**



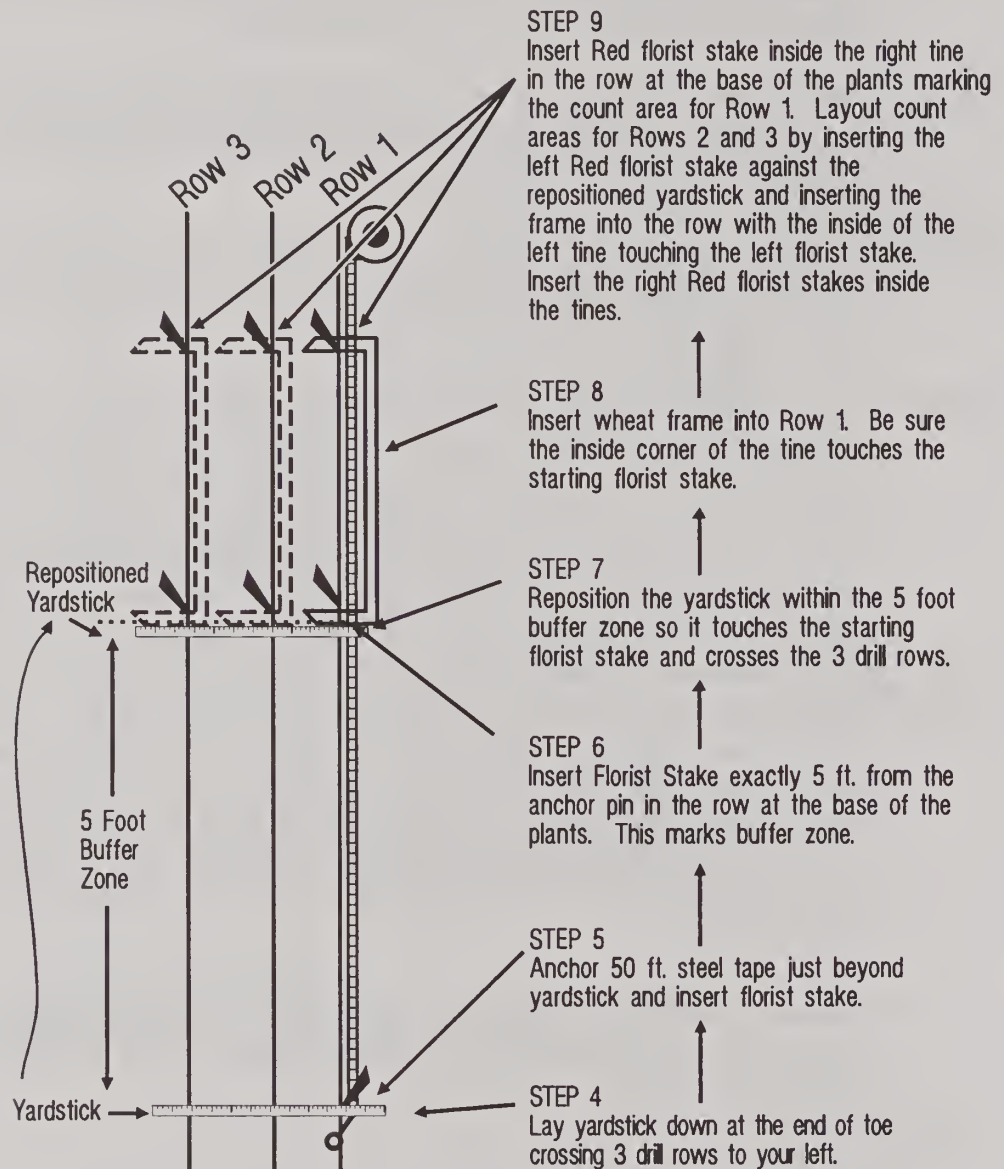
STEP 4
Lay Yardstick down
at the end of toe.
(See Broadcast
Procedures)

- Step 5:** Lay out 5 foot buffer zone. The buffer zone is always laid out to the **right** of the yardstick. Anchor the zero end of the 50 ft. steel tape just beyond the yardstick and directly along side the plants in Row 1. The zero end of the tape must be anchored firmly and close to the ground so it will not move when the measurement is being made. Mark the sample number (e.g. S-11) on a red florist stake (anchor stake) and insert it at this anchor point.
- Step 6:** In Row 1 place a red starting florist stake, marked "U1-R1" exactly 5 feet from the anchor point. The florist stake should be placed in the row at the base of the plants. This marks the buffer zone.
- Step 7:** Reposition the yardstick within the 5 foot buffer so that it touches the starting florist stake and crosses three drill rows. Be careful to position the yardstick in a straight line from the starting florist stake across the 3 drill rows.
- Step 8:** The wheat frame identifies the length of row included in the unit. Always place the frame to the right of the yardstick. Working from outside the unit, carefully slip the wheat frame into Row 1 through the base of the plants with the inside corner of the left tine touching the florist stake just placed in Row 1. The tine(s) of the frame may divide a plant that has many stalks ("ribs of an umbrella"). You are to slip the frame through the base of the plants immediately to the right of the yard stick (with the starting stake touching the inside corner of the left tine); thereby, allowing the tine (short arm) to determine which stalks are included or excluded for the unit. Do not move stalks in or out of the frame. Mark the first row with a red florist stake, then lift the frame over the first row and push it up to the second row and mark it. Repeat this again to mark the third row. Always mark the rows one at a time being careful to lift the frame before moving it up to the next row. The 2 tines should extend through the row with the back of the frame parallel to the row. Be sure that the inside corner of the tines are touching the florist stakes.

When the unit falls in a blank area (no wheat): 1) lay out the count area but do not lay out clip areas and 2) revisit the unit the following survey period to verify it is still blank (no wheat).

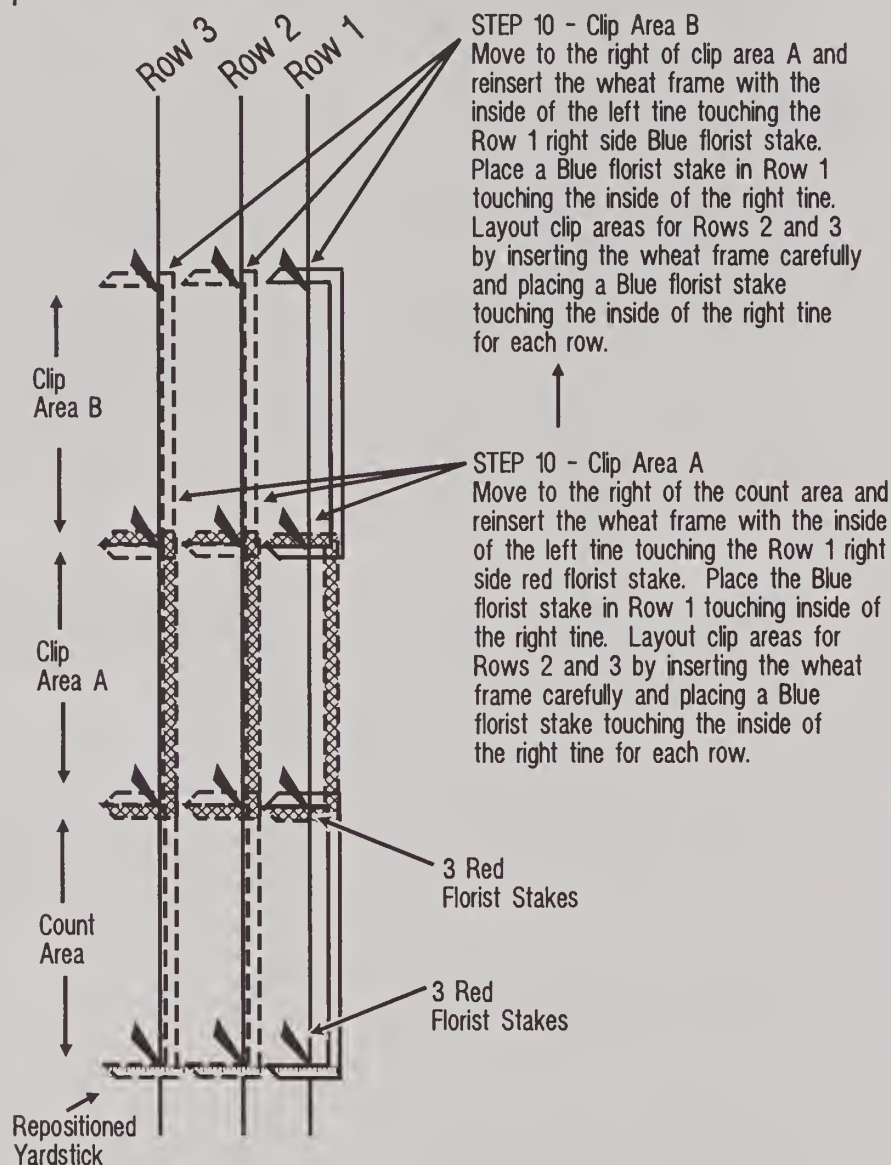
Important: Always place the frame to the right of the yardstick, even though the count and clip areas may be laid out towards the starting corner. Indicate on the kit envelope the direction of the unit and position of the lightweight stake (4 foot stake).

Example:



Step 9: Mark the lengths of the three rows in the unit with red florist stakes by inserting a stake into the ground at each point where the inside edge of the frame tines cross the row. This will require six red florist stakes (the starting florist stake, already placed plus 5 more). The three red florist stakes marking the left side of the count area should be identified by unit and row, i.e., U-1, R-1 or U-1, R-2. This will aid in identification, if on a later visit some stakes are missing. After you have carefully marked the count area of Sample Unit 1 with six red florist stakes, remove the frame from the third row. Care should be taken not to step into or otherwise disturb the area to the immediate right of the count area. Two clipping areas (discussed in Step 10) will be laid out in this area. If the field is not in the hard dough or ripe stage (maturity code 6 or 7) at the time you lay out the unit, mark the general location of the unit with a lightweight stake about 4 or 5 feet long. This will help you spot the unit from a distance when the wheat is taller. This stake should be placed four rows away from the left hand corner of the unit so that strong winds will not blow the mature wheat in the unit against the stake and shatter the heads. Also, position the stake in the pathway of your next visit. This will help prevent anyone from walking into the unit and accidentally damaging the plants in future visits.

Laying Out and Marking
Count Area and
Clip Areas A and B



Step 10: Laying out and marking Clip Areas A and B.

Important: Clip Areas are required when the Unit 1 count area is in Preflag through Soft Dough Stage (Maturity Codes 1-5). Clip areas are not required when the Unit 1 count area is in Hard Dough or Ripe Stage (Maturity Code 6 or 7).

Clip Area A: Move to the right of the count area and reinsert the frame with the left line just inside the count area and immediately adjacent to the Row 1 right-hand red stake. Place a blue florist stake in Row 1 inside the right line to mark Row 1 of Clip Area A. Mark all three rows being careful to lift the frame before moving into the next row.

Clip Area B: Repeat this same procedure to lay out the Clip Area B immediately to the right of the first clip area (A). When the maturity of Unit 1 is Code 3, 4, or 5, clippings will be made from a specified row in one of the "clip areas". The row to be clipped in each one of the clip areas is identified on the Form B.

When no distinguishable rows are present, refer to Broadcast Procedures Chapter 5.

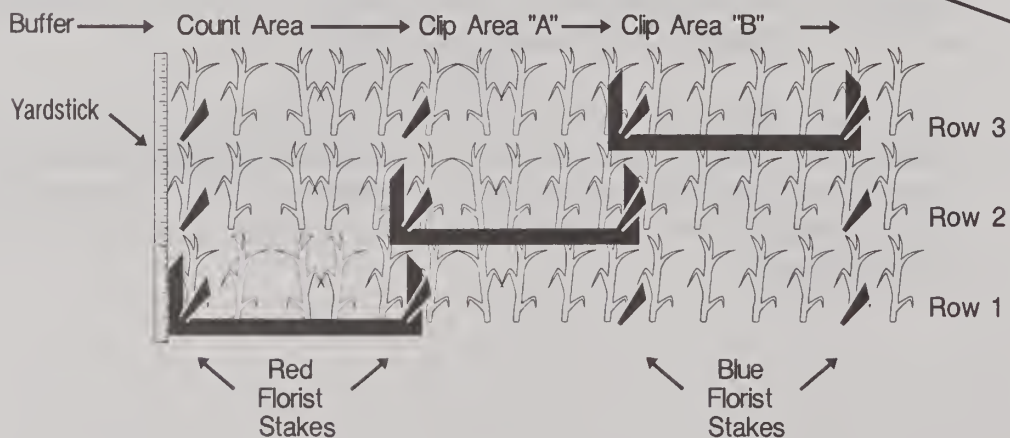
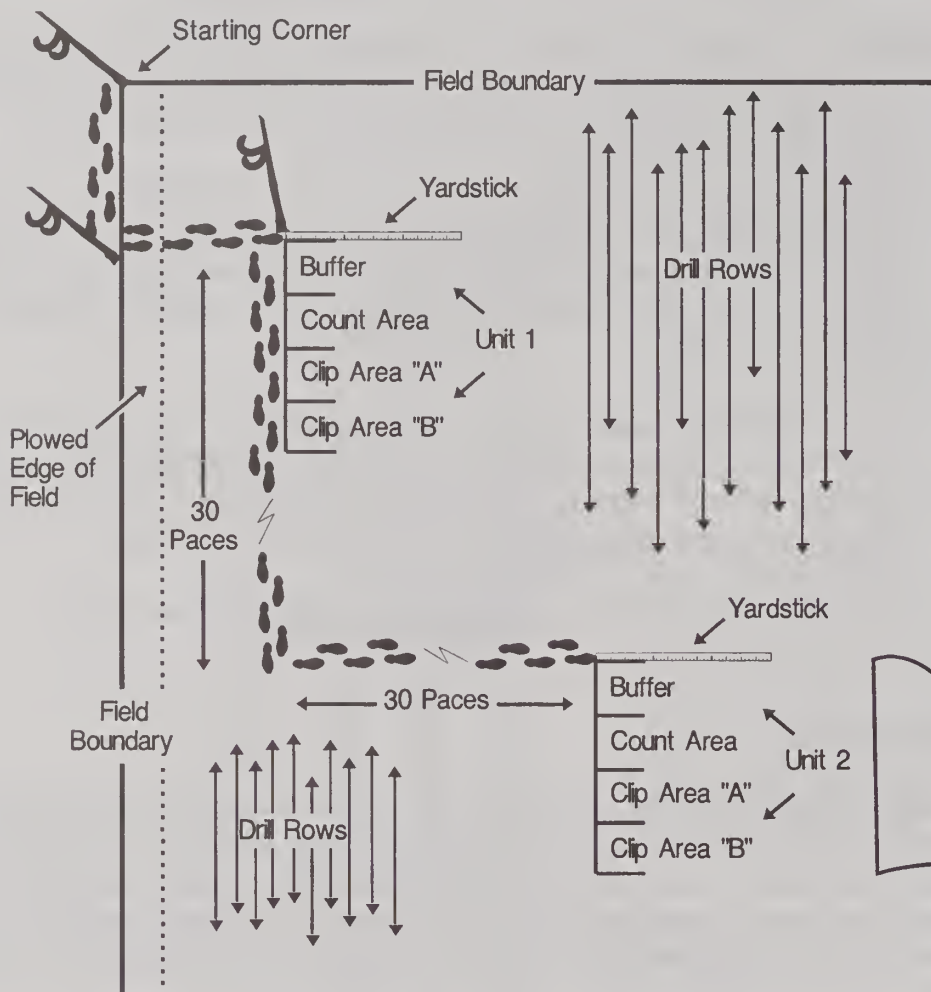
Step 11: Locating Unit 2.

After completing the Form B observations in Unit 1, start from the last pace required for Unit 1 and walk 30 paces parallel with the longer side of the field and in the same direction that you were traveling when you located Unit 1. Then turn at a right angle and walk 30 more paces into the field, to locate, lay out and mark Unit 2. Remember to stop counting paces when walking through a deducted area (refer to Table A, Form A-1, A-2D or A-2S).

Repeat Steps 4 through 10 for Unit 2. The red florist stakes should be identified as in Unit 1, changing the unit number (U-2, R-1; U-2, R-2; etc.).

Important: While laying out the units and later while observing plants and counting and clipping heads, you should be careful to avoid rough handling and trampling of plants in the three sample rows within the count or clipping areas. Do not destroy or remove wheat plants, other crop plants, or weeds in and around the unit.

LAYING OUT CLIP AREAS AND LOCATING UNIT 2.



BROADCAST PROCEDURES

When no drill rows can be distinguished at your last pace into the field you will use these procedures to locate and lay out units.

This situation usually occurs as a result of broadcast seeding, reseeding to improve the stand or when a sample unit happens to fall in an area used as a turn row or where the farmer drilled out the corners.

After you have taken the last of the required paces, place the yardstick down pointing straight ahead and immediately in front of your toe. (See earlier illustrations). Lay out the 5 foot buffer zone to the right of the yardstick. Anchor the zero end of the 50 foot steel tape at the end of your toe touching the yardstick. Be sure the pin is firmly anchored and the zero end of the tape is close to the ground so it will not move when the measurement is made. Mark the sample number (e.g. S-11) on a red florist stake (anchor stake) and insert it at this anchor point.

Measure to the right in a straight line perpendicular to the yardstick, exactly 5 feet. Insert a red starting florist stake, marked "U1" exactly 5 feet from the anchor point.

Reposition the yardstick within the 5 foot buffer so that it touches the starting florist stake. Be careful to position the yardstick in a straight line from the florist stake parallel to its previous position. The end of the yardstick closest to the starting florist stake (marked U1) is always the lower left hand corner of the count area.

The wheat frame will be used to mark a square 21.6 inches on a side. Working from outside the unit carefully slip the wheat frame through the base of the plants with the inside edge of the left tine touching the (starting) florist stake at the inside corner. The wheat frame identifies the area included in the unit.

Insert the ending florist stake (red) at the inside corner of the right tine. Two corners (1st & 2nd) of the square are marked.

Pick up the frame, lay it parallel to the yardstick with the second red stake in the corner of the frame. Place a red stake in the far inside corner of the frame marking the third corner of the square. Again pick up the frame, place it with a tine parallel to the yardstick and with the third stake in the inside corner of the frame to locate the fourth corner of the square.

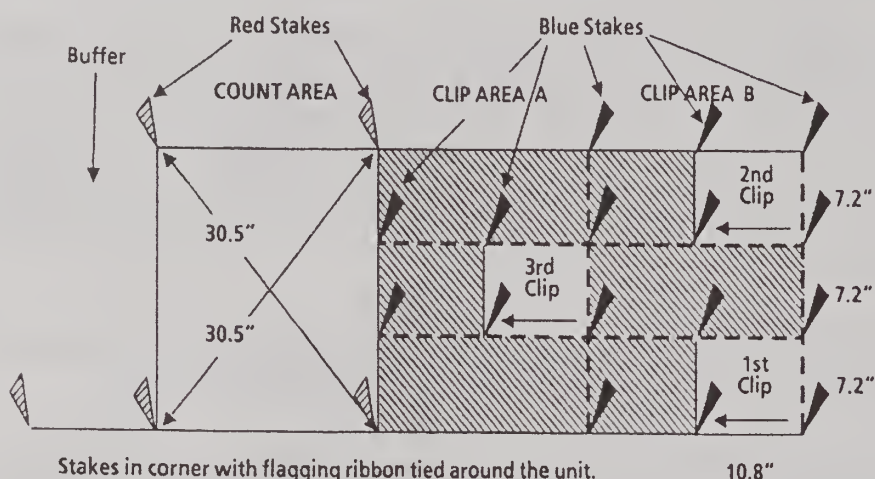
You must square off the area by making sure the diagonal distance (from the third stake to the first stake) is 30.5 inches. If it isn't square, move stakes to make the area square.

Chapter 5

Unit Location

Each of the four corners of the unit are marked with red florist stakes. Draw plastic flagging ribbon tightly from one corner to the next. Mark the general location of the unit with a locator stake as in Step 9.

Now mark both clipping areas using blue florist stakes and plastic flagging ribbon. Divide the clip area into 3 equal parts or thirds (7.2 inches or .6 feet) with the steel tape and mark with blue florist stakes. Attach flagging ribbon between stakes (see dotted lines). Each third will represent one row plus its associated middle.



SPECIAL PROBLEMS

No drill rows can be distinguished.

This situation usually occurs as a result of broadcast seeding, reseeding to improve the stand, or locating a sample unit in an area which was used as a turn row or where the farmer drilled out the corners.

Refer to Broadcast Procedures for instructions to follow.

You are to record the total number of stalks or heads in the units in the Row 3 Column, leaving Row 1 and Row 2 blank.

Bounce back

When pacing along the edge of the field, or pacing into the field, if you reach the opposite end or side of the field and still have not taken the required number of paces, turn around and walk back in the direction from which you came until the required number of paces has been stepped off.

After the last pace, place the yardstick so that it touches the toe of your shoe and crosses the three drill rows immediately in front of your toe or to the left of your toe depending on the direction of the rows at that point. Lay out the buffer zone to the right of the yardstick regardless of its relation to the starting corner.

Unit 1 is ripe or hard dough stage on first visit.

All heads in the count units will be clipped as the final operation in completing a Form B for samples in the ripe or hard dough stage on the first visit. All stakes will be removed just before you leave the unit. The clip areas will not be laid out.

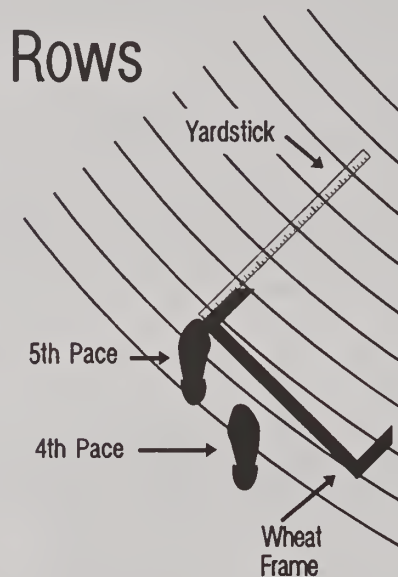
Blank Areas

Sample units will never be located in excluded areas or in any other areas reported in "Other Uses" in Table A of Form A-1, A-2D or A-2S. However, some units may fall in legitimate blank areas, i.e., areas reported as having wheat for harvest as grain.

If only one sample unit falls in a blank area, continue to make counts on the other unit. Enter dashes in the appropriate box for the unit located in the blank area.

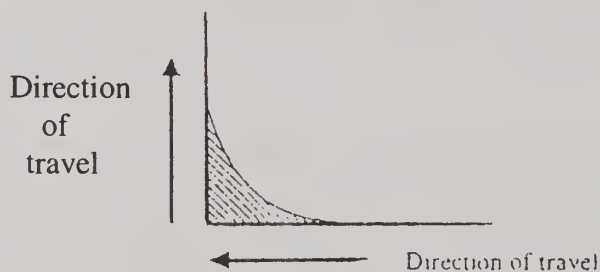
If both sample units fall in a blank area (no plants standing in any of the three sample rows) the count area will be laid out but no clip areas will be laid out. Dashes should be entered, where appropriate for the units on the Form B which should be returned to the State office. Note on the Form B and the kit envelope that the units fell in blank areas. Revisit the units the following survey period to verify they are still blank (no wheat). If blank, no further preharvest visits will be made to the sample. A postharvest gleaning visit (using Form E) will be required if it is a gleaning sample.

Turning Drill Rows



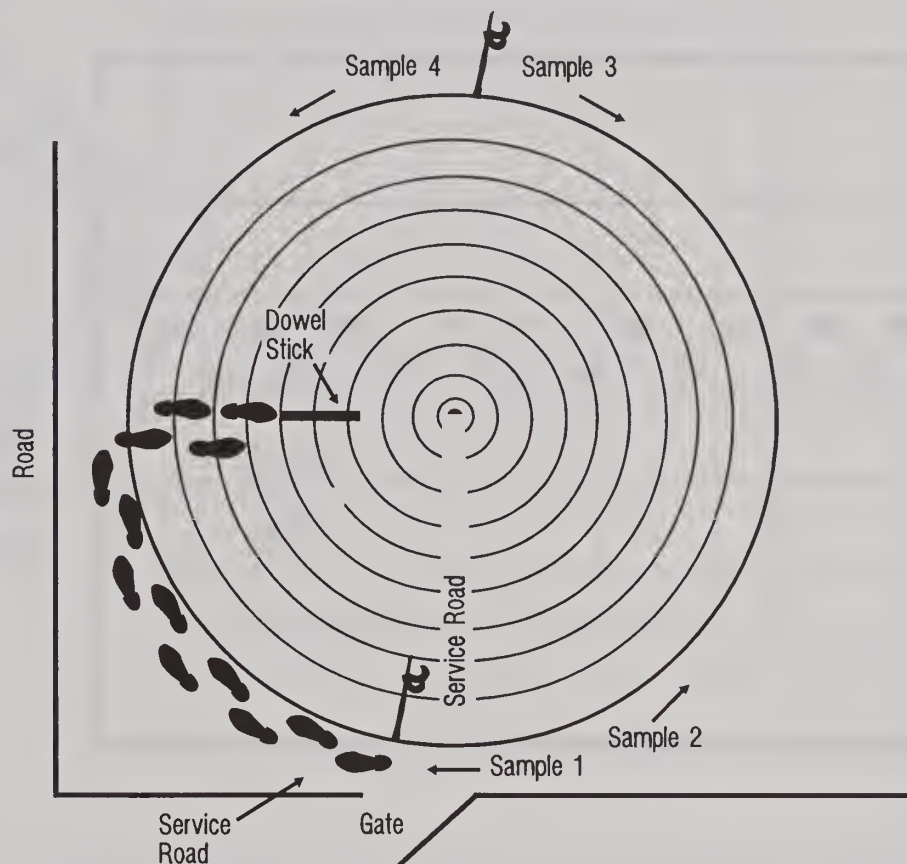
When the unit falls in turning (curved) rows such as may be found in corners of a field, you will not be able to lay the yardstick down in the usual manner. You will lay your yardstick down at the tip of your toe but angling it to be as nearly perpendicular to the rows as possible. Then lay out the unit in the usual manner.

Sample Falls In Field With Curved Corners



Handle the same as you would a circular field. Count down the side of the field while straight and when the corner curves, continue in a straight line to a point equal to the edge of the field. Turn towards the field at a 90 degree angle and count in that direction. If the corner of the field outside the curve was included as crop on the Form A, include it in your counts. If the area was excluded on the Form A, exclude it in your counts.

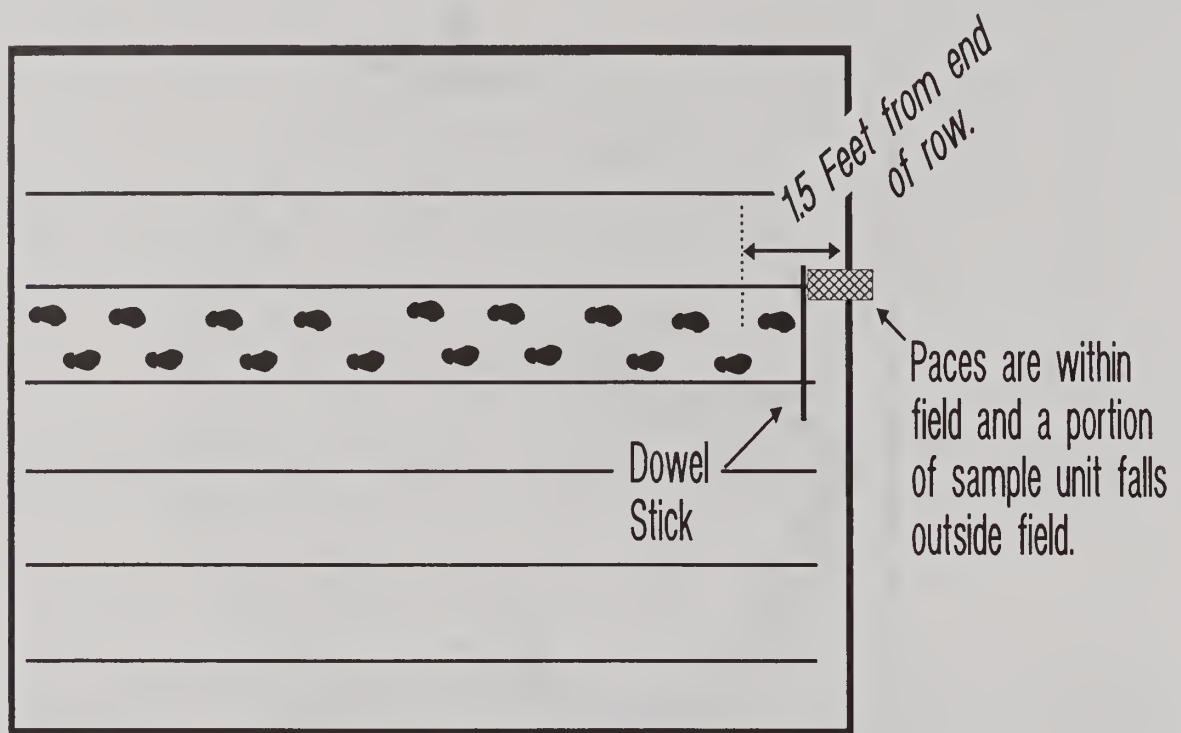
Spiral Seeded Field



The starting point will be that point first reached when arriving at the field. To locate sample units in a spiral seeded field, use paces as shown on the Form B when walking clockwise along the edge of the field. Then use the number of paces shown on the Form B to count paces into the field. Be sure your diagram on the kit envelope is complete and is easy to follow in locating the sample units in the spiral field.

A second sample in a spiral field would be located in a counter-clockwise direction from the original starting point. If a third sample was selected, go to the opposite side of the field from the original starting point and locate the third sample in the clockwise direction. If a 4th sample is required, locate it in the counter-clockwise direction.

Part of Unit Falls Outside of Field

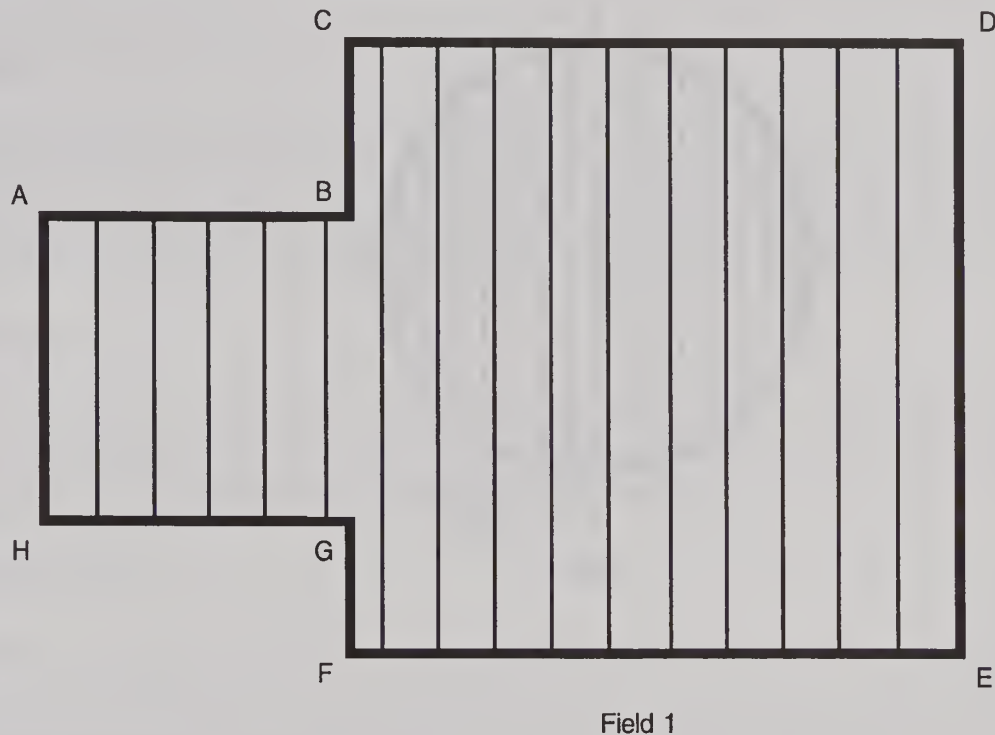


When the number of paces into the field will cause part of the unit to fall outside the field proper, decrease the pace count until the entire unit is included in the main body of the field by 1 1/2 feet.

Farmer harvested sample field before First Survey Period.

Conduct the Initial Interview (Form A-1, A-2D or A-2S). Return all other forms with notes explaining that farmer harvest occurred before the survey period.

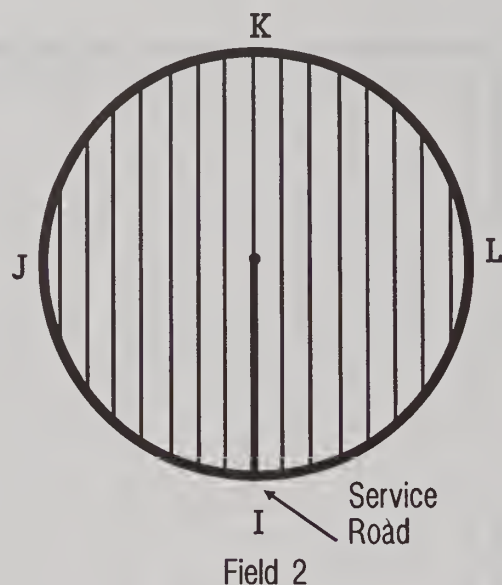
Odd-shaped fields - Starting Corners



Field 1

Corners A, D, E or H could be the starting corner under the "unit location" principle because the sample unit would have equal chance of falling anywhere in the field.

Corners B, C, F or G cannot be the starting corner because the unit has less chance of falling in the areas of the field marked by the corners (A,B,G,H).



Field 2

"Corners" J or L could be the starting corner on this field because if you start your count there each row would have equal chance of falling in the unit.

If you made "Corner I" your starting corner, rows I to J would have a chance to be in the sample twice before rows I to L had a chance to be in the sample once.

Starting at "Corner K" would produce the same type of results, therefore neither Point I or K should be a starting corner.

GENERAL

The purpose of the Form B counts and observations is to develop an indication to help set the monthly wheat crop yield estimates. Each item counted and head clipped is a very important step in the process of setting monthly production forecasts or estimates. Only through careful adherence to the Objective Yield Survey procedures can a reliable forecast or estimate be made.

Identification

You will record unit observations using the Form B for each survey period. Be sure the identification (usually a label) is in the space provided at the top of each Form B. If it is not, you must record the identification from the sample field kit envelope.

Preharvest Visits

The regular visits you make within the survey periods before the units reach maturity stage 6 or 7 will be known as preharvest visits. During these visits, you will harvest heads from clip area A or B when the units are in maturity stage 3, 4, or 5. When the units reach maturity stage 6 or 7, this will be your final preharvest visit.

The heads inside the sample count area are to be clipped on the final preharvest visit. The clipped heads represent grain ready to be harvested by the farmer. Ideally, the sample units will be clipped the same day the field is harvested. It is crucial you do not categorize green samples (code 5 or earlier) as mature (code 6 or 7). Green samples (immature) sent to the laboratory give an inaccurate indication of yield. If you are unsure of whether the maturity category is 5 or 6 it is best to code it 5 and wait a week for further ripening.

It will be necessary to make many final preharvest visits to many samples between regular survey periods. This will occur when the unit maturity stage has not yet reached Code 6 stage (Hard Dough) during the regular survey visit but will be harvested by the operator before the next monthly survey period. The "between survey" visit must be made no more than three days ahead of farmer harvest. Telephone the operator before making these "between survey" visits to determine when the field will be harvested. Record this information onto the field kit envelope. You may make personal visits if you are already in the neighborhood.

Pesticide Safety

Forms A-1, A-2D, A-2S and B have a question asking if the operator has applied or will apply pesticides with organophosphorus content to the sample field. If yes, the date of latest application and name of the pesticide must be recorded. If the operator doesn't know if, or when, pesticides will be applied, be sure to note this on the kit envelope and make contact again before entering the field.

You are responsible for following all precautions set forth in Chapter 1. Never enter a field when pesticide has been applied earlier in the day.

SPECIAL PROBLEMS

When returning to samples for the second, third, or fourth monthly visit, you will generally have no problem finding the sample units. However, for a few samples you may need to use one or more of the following procedures:

Example 1: Wheat is still standing in the field but the sample unit location stake has been removed or fallen over or for any other reason you are unable to find the unit(s).

Procedure: Lay out a new sample unit(s) using the same number of paces along and into the field as shown on the Form B and also on the kit envelope for the sample unit(s). Start from the same corner of the field as when the sample unit(s) were first laid out. Code Item 1 "2" for each unit that was relocated. Measure width of 4 row spaces for unit(s) and enter in Item 2 of the Form B, if drill rows can be distinguished.

Example 2: Part of the field has been harvested including the area where one or both sample units were located.

Procedure: Record dashes in Items 3 to 6 for each unit that was harvested. Write "Unit(s)____ Harvested" in margin of Form B. Locate gleanings for the harvested unit(s) in the harvested part of the field.

Example 3: Part of field has been destroyed by the farmer (plowed, disked, mowed, cut for hay, etc.) including the area where one or both sample units were located.

Procedure: Record dashes in Items 3 to 6 for each unit that was destroyed. Write "Unit(s)____ Destroyed" in margin of Form B. If only one unit was destroyed, complete all items for the remaining unit as usual. Also lay out both units on the postharvest visit. When laying out the units, you would not count paces when crossing the part of the field that was destroyed. Even if both units are destroyed, gleaning units should be located in the portion of the field that is harvested for grain. (See instructions in Chapter 8.)

Example 4: The entire field has been harvested for grain, cut for hay, plowed, disked, etc.

Procedure: Write "Field Harvested for grain, cut for hay, plowed, etc." on Form B. If harvest for grain has occurred within 3 days, complete the Form E gleaning. Otherwise, obtain gleaning in an alternate field. (See instructions in Chapter 8.)

Example 5: Unit 1 of the sample is in Soft Dough stage (Code 5) and the other is mature (Code 6 or 7). The operator plans to "patch" harvest the field before Unit 1 reaches maturity Code 6 or 7.

Procedure: Make the required counts and clippings for both units as prescribed for maturity Code 5. Then make the regular "Regional Laboratory" clippings from the count area of the mature unit. Be sure to record the Item 6b count which will be edited out by the SSO for the current month but used when the immature unit is ready for processing as mature (final preharvest Form B). Inform both the Survey Statistician and the Regional lab of the situation by writing notes on the Form B and ID tags. Return to the immature unit whenever it reaches Code 6 or 7 and obtain the count area clippings plus complete the final preharvest Form B. The counts for Items 5, 6a and 6b for the previously mature unit will be recorded from the earlier Form B by the SSO. Postharvest gleanings (if gleaning sample) will need to be done on separate visits as soon as possible after each unit is harvested.

UNIT INFORMATION

UNIT LOCATION

	UNIT 1		UNIT 2	
Number of paces along edge of field	213	+30	243	Date (_____)
Number of paces into field	88	+30	118	

Record the date in the space provided at the top of the Form.

Chapter 6

Form B

UNIT INFORMATION

1. Determine and assign a Unit Location Status:

- a. First visit to lay out unit Status 1
 b. Unit relocated this month Status 2
 c. Same unit laid out previously Status 3

Enter Code

UNIT 1	UNIT 2
305 /	307 /

Go to Item 3 when coded 3, otherwise go to Item 2

A "1" should be coded for the first month the units are located and laid out; then go to Item 2. On later visits if you are unable to locate the unit laid out earlier and it is necessary to lay out a new unit, you will Code "2" for the unit and go to Item 2. If you find the unit laid out earlier, code "3" for that unit and go to Item 3.

ROW MEASUREMENT AND MATURITY STAGES

2. Measure distance from stalks in Row 1 to stalks

In Row 5 Feet & Tenths

301 4 0	303 4 1
---------	---------

The purpose of row space measurements is to derive plant population. Since we are measuring so few rows in the field an error will have severe effects on the yields throughout the season. You must record the distance in feet and tenths of feet. Be sure your tape measure is calibrated in feet and tenths of feet and not in feet and inches.

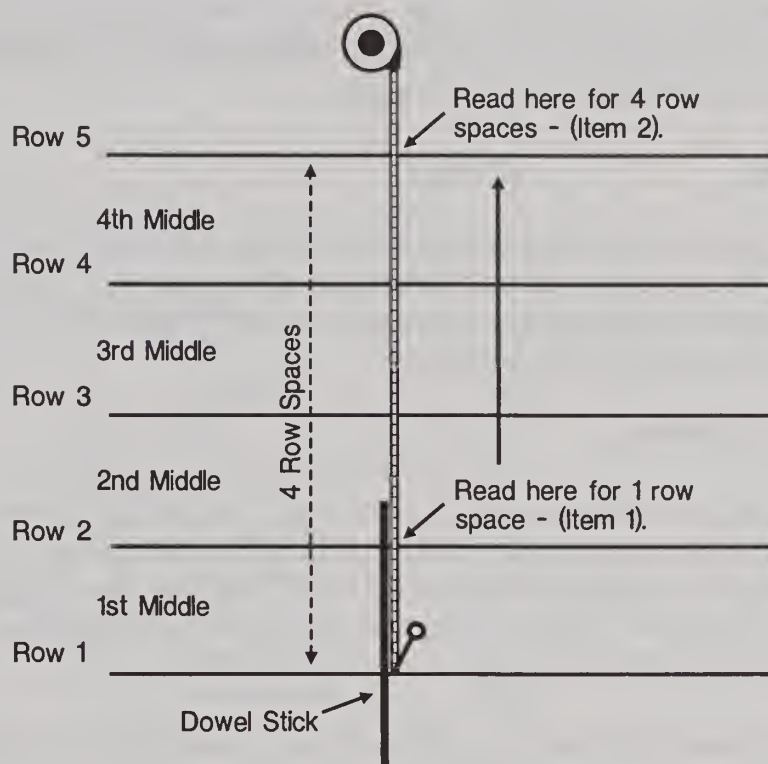
The measurement of row spaces will be made only on the first visit except when one or both units are relocated. This measurement will be left blank on later visits except when one or both units are relocated.

If a sample unit happens to fall in an area where no drill rows can be distinguished, you will not complete Item 2 for the Unit, but you must note the reason in the margin of the Form B.

For Item 2, measure the distance across four drill row spaces at the first placement of the yardstick (beginning of the buffer zone) with the steel tape. Start at the **center** of the stalks in Row 1 and measure across four row spaces, or middles, to the **center** of the stalks in Row 5. (See illustration following this page). If there are not enough rows remaining to get a 4-row space measurement, measure from the center of the stalks in Row 2 in the direction of Row 1. Across four row spaces. Occasionally, at the edge of the field, no distinguishable rows can be observed. If this happens, obtain the measurement by moving the anchor pin toward the unit until rows can be distinguished.

Make a note of unusual row spacing because of double row, skips, lapping by drill, etc.

MEASURING DISTANCE ACROSS ROW SPACES



3. Stage of maturity: (Circle one code for each unit)

Maturity Stage	Pre-Flag	Flag or Early Boot	Late Boot or Flower	Milk	Soft Dough	Hard Dough	Ripe	Blank
UNIT 1 Count Area	300 1	300 2	300 3	300 4	300 5	300 6	300 7	300 8
UNIT 2 Count Area	302 1	302 2	302 3	302 4	302 5	302 6	302 7	302 8
If Unit One Maturity is:	1 or 2, start counts with Item 4		3, 4, or 5, start counts with Item 5.			6 or 7, start counts with Item 5.		8, substitute Unit Two. When both 8, go to Item 7.

A stage of maturity is to be determined in each unit count area by circling the numerical stage code in the Item 3 table. The stage which you assign the unit will be the stage with the greatest number of stalks inside the unit count area. Do not damage any plants in the unit. Where the majority of plants in the unit count area have started to head, examine a few plants of similar development outside the unit to assist you in determining the maturity. Use the descriptive

Chapter 6

Form B

material which follows as criteria for arriving at the stages of maturity. There will be cases when you are undecided on the maturity stage of the unit. When this occurs, review the maturity stage descriptions involved and classify the unit in the stage that it most nearly represents. If still undecided, classify it in the lower stage of maturity.

Code 1 - Pre-Flag

This is a general category in which you will record all units where tillers are only an inch or two high, up to units where stalks are large or mature enough to be in the "Flag or Early Boot" stage. The stalks do not indicate any swelling and do not have the definite flag leaf or other evidence of a partly developed head inside the leaf sheath.

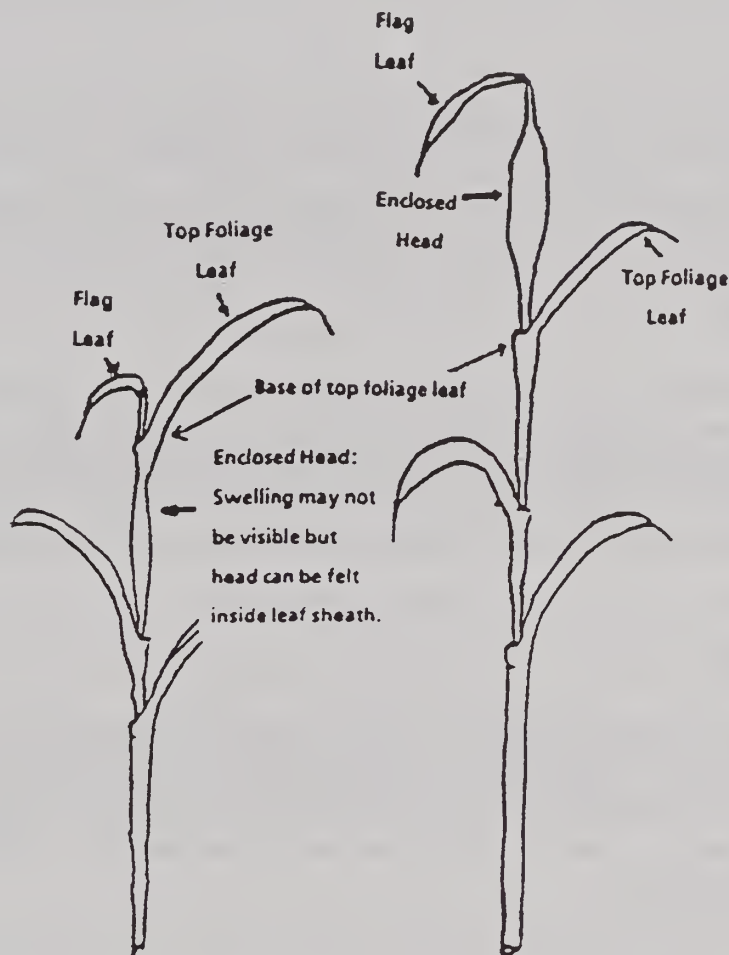
Code 2 - Flag or Early Boot

Stalks are starting to joint and joints can be seen easily. The plant has four or five leaves and the "flag leaf" is identifiable and its collar is visible above the top foliage leaf. A partly developed head may be detected by noting that the stem has started swelling below the top foliage leaf (swelling at the widest point). This swelling may also be felt inside the sheath. Be careful not to damage the partly developed head by squeezing the stem sheath.

In most cases, the presence of heads enclosed in the leaf sheath could be verified by going outside the unit. Examine stalks that are similar in appearance to the doubtful ones before classifying the unit in the FLAG or EARLY BOOT stage. Clip a few stalks, unroll the leaf sheath and see whether or not there is a small, partially developed head encased in the sheath.

ITEM 3: STAGE OF MATURITY

CLASSIFYING HEADS IN "EARLY BOOT" AND "LATE BOOT" STAGES OF MATURITY.



EARLY BOOT

LATE BOOT

Code 3 - Late Boot or Flower (Heads Emerged), Includes Watery Kernels

The head has moved up the stem and swelling at the widest point has occurred above the base of the top foliage leaf. The sheath will be split and the head will be partially or wholly emerged. The flower stage occurs soon after the head emerges and small blooms or flowers begin to open at the middle of the head and blooming progresses towards each end of the head.

Chapter 6

Form B

For our purpose, consider the unit to be in the late boot or flower stage from the time swelling at the widest point can be seen or felt above the base of the top foliage leaf until the head emerges and the watery clear liquid in the kernel has begun to turn milky.

Code 4 - Milk

Kernels formed in heads. Kernels of grain are soft, moist and milky. When the grain is squeezed, a milky liquid can be observed. The plant is still generally green. One or two of the lower leaves may be dead, but the blades of the three upper leaves and the head are green. Signs of ripening (yellow spots or strips) are visible only on the edges or tips of the leaves.

Code 5 - Soft Dough

The grains can be crushed between the finger and thumbnail; the contents of most of the GRAINS are SOFT and can be kneaded LIKE DOUGH with ONLY A FEW GRAINS PER HEAD containing any milky liquid. The plant has changed to a golden tint (except in the purple-strawed varieties which are a pinkish purple color); the stalk is smooth and shiny, tough and pliable. Only the upper-most leaves are swollen and green, the lower leaves being shrunken and brownish.

Code 6 - Hard Dough

The grains readily part from the head and are likely to shake out of the glumes. The grain is firm and though it may be dented by pressure of the thumbnail, it is not easily crushed. The characteristic color has become distinct. The yellow grains are paler, the red grains somewhat darker and flinty or mealy in character. The leaves are dry and shrunken. Wheat in this category may be swathed in some areas.

Code 7 - Ripe

Straw is full and brittle at this stage; the GRAIN is HARD and BREAKS IN FRAGMENTS when crushed. Harvest may be expected at this time.

Code 8 - Blank

This maturity code is used for fields with blank areas where the sample falls. There will be no plants in the sample unit.

COUNT OF STALKS AND HEADS WITHIN COUNT AREAS

Purpose: Prior to the final pre-harvest visit, the number of stalks and/or heads in the "count area" along with the heads clipped from "clip area A or B" are used to establish GROSS YIELD. Clip area sample heads provide a measure of grains per head and weight per head. Count area heads clipped during the final pre-harvest visit and mailed to the Regional Lab provide actual threshed grain weight per head adjusted to standard moisture obtained at time of lab threshing.

Counts of stalks, emerged heads and heads in late boot are to be recorded for individual rows (1, 2 and 3) for each unit. Where there are **no drill rows**, report the total number of stalks or heads in the unit in the Row 3 column, leaving Row 1 and Row 2 columns blank. Note on the form that there are no drill rows. Counts of detached heads are recorded for each unit (rather than by rows) in Item 6b, Row 2.

Important: Take care not to trample the wheat in the sample rows inside or near the sample units. Stalks and heads in the unit must be handled carefully to avoid affecting counts on future visits.

If wheat plants are growing in the middles between drill rows, the count of stalks for these plants is to be included with the count of stalks for the associated drill row. The row space or "middle" associated with the first row will always be in the direction of the second row and the "middle" associated with the second row will be the space between the second and third rows. The middle associated with the third row will be the space between rows three and four. The "middle" will include the stalks in the row it is associated with, but will extend only up to but not include the stalks in the next row.

The first item counts made in the units will vary between samples and between months depending on the stage of maturity. Boxed instructions in Item 3 define the first item to be counted in making the within unit counts. Starting with the item indicated by the instructions, counts will be made for all remaining items in order with the exception of detached heads (Item 6b) for which counts are made only on the final pre-harvest visit to the field. Use your hand counter.

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Form B

COUNTS WITHIN UNITS

4. Number of stalks (stems) in row

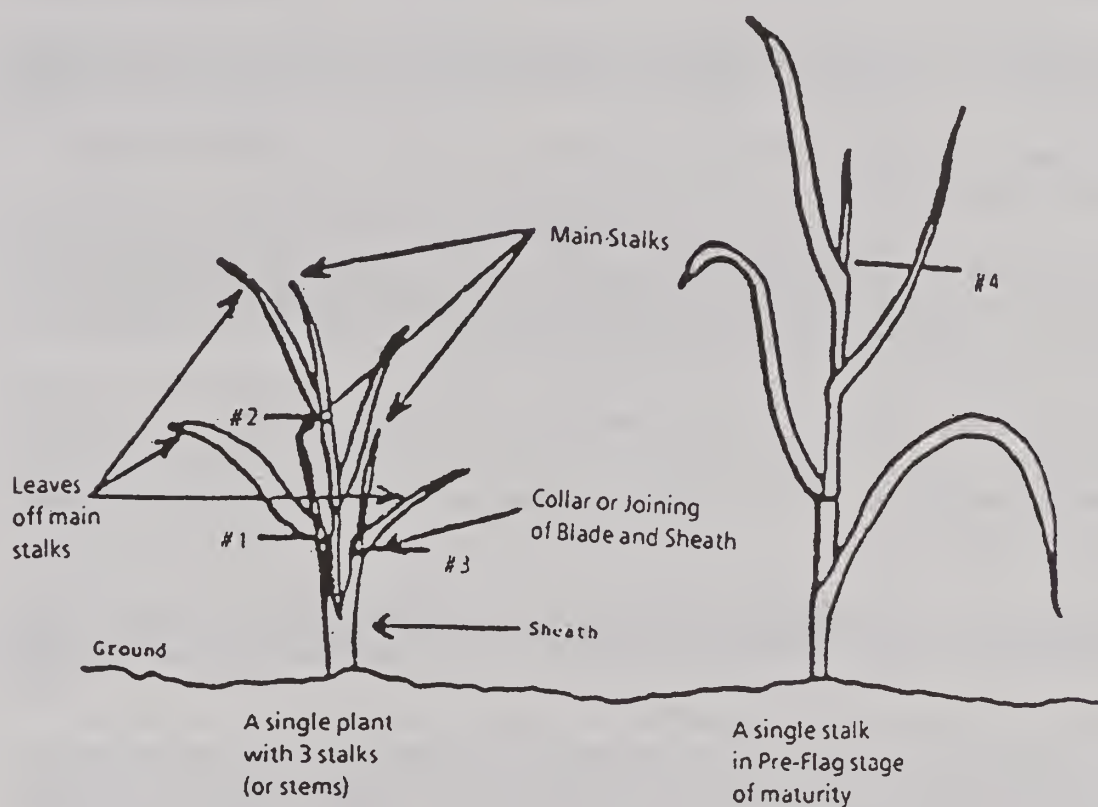
UNIT 1			UNIT 2		
Row 1	Row 2	Row 3	Row 1	Row 2	Row 3
311	312	313	314	315	316

Important: Make counts in the Unit Count Area. Counts for Item 4 will be made only when the Unit 1 (or Unit 2 when Unit 1 is blank) maturity code is 1 or 2.

Item 4 is to be the count of all wheat stalks alive, damaged, or dead which emerge from the ground within the sample count unit. (The words stalk and stem can be used interchangeably in Item 4). Each wheat plant will generally have a number of stalks converging at the ground level like the ribs on an umbrella. For the very young plants, count only stalks that have at least ONE leaf off the main stalk. One leaf off the main stalk is defined as the presence of a foliage leaf, however small, together with a leaf associated with the growing tip of the stalk. See illustrations of Item 4 young wheat.

Care must be taken in making these stalk counts to ensure the necessary degree of accuracy, especially with young wheat. Generally, this will require getting down on your hands and knees, looking at the stalks at close range and separating them one by one with the point of a pencil while counting. For the purpose of this survey, do not count the small single leafed stems or stalks that do not have foliage leaves and which are barely visible above the ground. By the first visit, most fields are expected to have some stalks with foliage leaves.

Item 4: Counting Stalks (or Stems) of Young Wheat



Stalk (or stem) #1

Number of Leaves = One

Stalk (or stem) #2

Number of Leaves = Two

Stalk (or stem) #3

Number of Leaves = One

Stalk (or stem) #4

Number of Leaves = Four

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Form B

All stems or stalks within the unit are to be counted as wheat unless they can be definitely identified as being grass or grain other than wheat. Stalks or stems definitely identified as not being wheat are not to be included in the counts. Do not remove any stalks or stems from the sample unit (grass, grain, weeds, etc.) as this affects the environment of the remaining plants.

5. Number of heads in LATE BOOT

351	35	352	32	353	28	354	37	355	41	356	35
-----	----	-----	----	-----	----	-----	----	-----	----	-----	----

Important: Counts will begin with Item 5 when the Unit 1 (or Unit 2 when Unit 1 is blank) maturity code is 3 through 7.

The presence of a head in "Late Boot" (maturity stage 3) is determined by observing swelling at the widest point on the stalk between the flag leaf and the base of the top foliage leaf. See previous illustration on "Classifying Heads Early Boot and Late Boot".

Do not include any heads of other small grains which may be growing in the unit. If the Unit 1 maturity code is 6 or 7, the "Heads in Late Boot" within the two count areas will also be clipped and sent to the Regional Lab in accordance with the instruction in Item 9. There should be very few if the maturity stage is 6 or 7.

6. Number of emerged heads on all stalks

331	21	332	23	333	26	334	19	335	16	336	21
-----	----	-----	----	-----	----	-----	----	-----	----	-----	----

These are counts of all emerged heads (regardless of condition) attached to stalks within the count area. A head is to be counted as an emerged head when spikelets are seen through the split in the sheath leaf or beyond. Do not count a head as emerged if the sheath is split but a spikelet is not visible or when a spikelet can only be seen through a transparent but unsplit leaf. Do not include late boot heads recorded in Item 5. Do not include any heads of other small grains which may be growing in the unit.

If the Unit 1 maturity code is 6 ("Hard Dough") or 7 ("Ripe"), the heads within the two count areas (Unit 1 and Unit 2) will be clipped and sent to the Regional Lab.

b. Number of detached heads in unit

(Complete 6b only on Final PRE-HARVEST VISIT)

341

344

This item is to be completed only on the final pre-harvest visit when the heads are clipped from within the count areas. Search the ground within the count areas after the emerged heads and heads in boot have been clipped. Record the number of detached heads (regardless of condition) which lie within the count area. These heads will have dropped from the stalks before the final

visit. Enter count of detached heads for each unit (all three rows and middles) under Row 2. Any heads found will be sent to the Regional Laboratory along with the clipped heads.

Clipping Instructions

Clipping is dependent upon the maturity code, not the number of visits to the sample. When a sample is visited and the maturity for Unit 1 is 3, 4 or 5, clippings in the specified clip area of both units are required.

7. If the MATURITY CODE Circled in Item 3 for Unit One (or Unit Two when Unit One is blank) is:
- (a) Code 1 or 2: SKIP Items 8 and 9. Enter enumerator and supervisor numbers and sign name.
 - (b) Code 3, 4 or 5: Go to Item 8.
 - (c) Code 6 or 7 : Go to Item 9.
 - (d) Code 8 (Both Units): Record dashes for appropriate items plus note on Form B and kit envelope that both units are in blank area. Enter enumerator and supervisor numbers, and sign name.

Maturity codes determine the sequence of questions after Item 7. Follow the Item 7 instructions carefully.

Note that the Unit 1 maturity code determines the action to follow. Always refer to the Unit 1 maturity code circled in Item 3 on the front of the Form B.

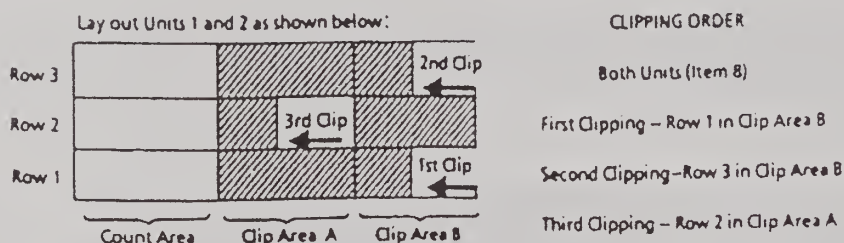
Maturity Codes 1 and 2 indicate immature wheat and Items 8 and 9 are skipped. No laboratory samples are required. Enter enumerator and supervisor numbers, check the form and sign your name.

Maturity Code 3, 4 or 5 calls for completion of Item 8 using the specified row within a clip area of each unit. Maturity Code 6 or 7 will indicate skipping Item 8 and completing Item 9 within the count area of both units. Maturity Code 8 indicates no plants in the unit count area. When both units are in blank areas, record dashes for Items 4, 5 and 6 plus note on Form B and kit envelope. Enter enumerator and supervisor number and sign name.

Chapter 6

Form B

A diagram of a unit and clipping order is on the back of every Form B.



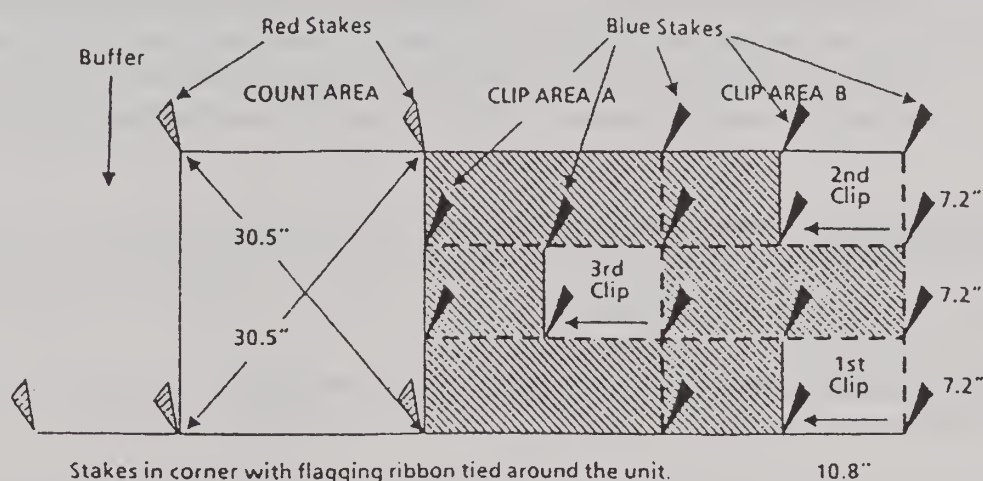
Clipping Immature Samples:

Always be sure that clipping is done in the proper row and area by reviewing the diagram each month. The clip area and row numbers are specified on the Form B. Clip the area marked "1st Clip" when Item 7(b) maturity code requirements have been met the first time. On subsequent visits when maturity codes indicate clippings, clip the area marked "2nd Clip" or "3rd Clip" depending on the number of clippings this will be. Record the number of clippings on the kit envelope plus match the clipping diagram (Form B) to the unit to see what clippings have been done. Continue clipping on each visit until the Unit 1 maturity code is 6 or 7, then follow Item 7 (c).

All wheat stalks (regardless of condition) will be clipped from one-half of the specified row in the clip area of each unit. If the first half of the designated clip row is blank, no clippings will be sent in. Note on the Form B explaining the designated clip row is blank.

When no distinguishable row is present in the clip area, divide the clip area into 3 equal parts or thirds (7.2 inches or .6 feet) with the steel tape, and mark with blue florist stakes. Attach flagging ribbon between stakes (dotted lines). Each third will represent one row plus its associated middle.

Complete Item 8, 1-4 as shown on the back of Form B.



Step 1: Mark half-way point in specified row in clip area.

Using a florist stake, mark the midpoint of the specified row. Half-way on the 21.6 inch wheat frame is 10.8 inches.

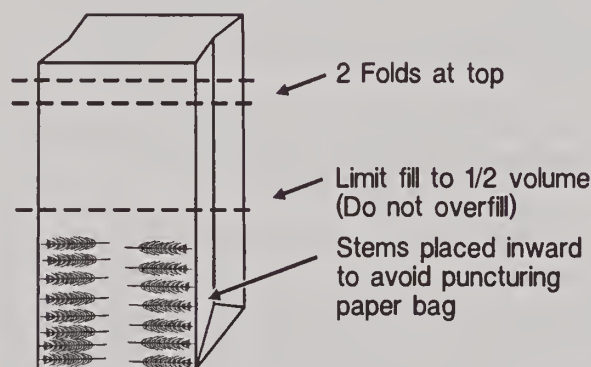
Step 2: Mow (cut stalks within 2 inches of base) all wheat stalks (regardless of condition) in specified row until 5 Emerged Heads (if that many) are obtained or until one-half the row is completely mowed. Begin mowing at the end of the row farthest from the count area and mow in the direction of the count area. Examine each stalk for an emerged head as it is mowed; if present, clip the stalk 1/2 inch below the head. The purpose of the 1/2" clip is to standardize the weight of stems. Without this standard, longer stems would mean higher wheat yields and shorter stems, lower wheat yields. Place the 5 (or less) emerged heads in the small bag. Record the count on the Regional (yellow) ID tag. Also when mowing, clip and count any heads in late boot and place in the medium size bag. Clip at the base of the top foliage leaf. Never go past the florist stake at the half-way point. In a thin wheat stand, it is possible to mow and not find 5 emerged heads. Always record on the ID tag the count of 5 or fewer emerged heads. Place the emerged head sample in the small bag. Late boot heads are counted and placed in a medium size bag to avoid mixing with emerged heads.

Step 3: Mow the remaining stalks up to the half-way mark. Examine each stalk for emerged or late boot heads. Clip the stalks of emerged heads 1/2 inch below the head. Clip the late boot heads at the base of the top foliage leaf. Place the remaining emerged heads in the large bag and the late boot heads in the medium size bag.

Bagging Instructions

To help prevent broken heads in shipment:

- 1) limit heads per bag to only half volume,
- 2) limit samples shipped per cloth mailing sack to one and
- 3) follow these instructions:



Step 4: Record the count of the remaining emerged heads and the late boot heads on the Regional Lab ID Tag. After completing observations for Unit 2, check over all items on the Form B to make certain you have completed each step. Repeat Steps 1 thru 4 for Unit 2 using same bags as used in Unit 1.** Prepare one ID tag. Label all bags with sample number. Seal and place small and medium bag in the large bag. Verify Regional yellow ID tag and attach to outside of large bag with a rubber band.

** If Unit 2 Maturity Code is 2, skip Items 8 & 9, discard Unit 1 clippings and DO NOT send any clippings to the Lab. Be sure and enter enumerator and supervisor numbers and sign name.

Check () after placing large bag in a cloth mailing sack that has a mailing tag addressed to the REGIONAL LAB. Skip Item 9, enter enumerator and supervisor numbers and sign name. Mail these samples at the end of each day, if not sooner.

Clipping Area ID Tags

NOTE: It is very important that the date on the ID Tag is the same as the date on the Form B. The dates must be the same to allow for computer matching between the Form B data and the Regional Lab data.

Use the "yellow" ID tag to identify the sample of preharvest heads clipped from the clipping area when the Unit 1 maturity is 3, 4 or 5.

One tag will be used for each sample. **All** lines of the upper identification section must be completed.

Separate columns for Unit 1 and Unit 2 are provided in which to record maturity codes and counts.

Maturity codes for each unit must agree with codes circled in Item 3 on the front of Form B.

Record, for each unit, the actual number of emerged heads mowed for the first five (or fewer) emerged heads.

Record, for each unit, the number of remaining emerged heads clipped from the specified row.

For each unit, add and record the total number of all heads mowed, clipped and placed in the large bags. Include the first five (or fewer) heads mowed. Verify that the cloth mailing sack containing the sample has a mailing tag properly addressed to the Regional Laboratory.

Chapter 6
Form B

WHEAT SAMPLE I.D. TAG CLIPPING AREA		
STATE	WA	
POID	830081350	
SAMPLE NO.	65	
FORM B DATE	6/1	
TYPE OF WHEAT: W.W. () S.W. () D.W. ()		
ENUMERATOR	M. Collins	
	Unit 1	Unit 2
Maturity Stage Code	3	3
Late Boot Heads No.	17	18
First Five (or less) Emerged Heads No.	5	5
Remaining Emerged Heads No.	10	10
Total - All Heads No.	32	33

MAIL SAMPLE TO REGIONAL LAB

Harvesting Mature Samples

If, during the regular survey period, the Unit 1 maturity stage is "hard dough" or "ripe" (Code 6 or 7), all heads (regardless of condition) inside both count areas are to be clipped and all detached heads (regardless of condition) on the ground in the count area are to be gleaned regardless of when farmer will harvest. Final preharvest visits made between survey periods should not be made more than three days ahead of farmer harvest.

Heads in "Late Boot", emerged heads, and detached heads will be clipped and counted separately. All heads in each count area will be clipped and placed in a large bag, one bag for each unit. Follow Steps 1 through 4 below for each unit.

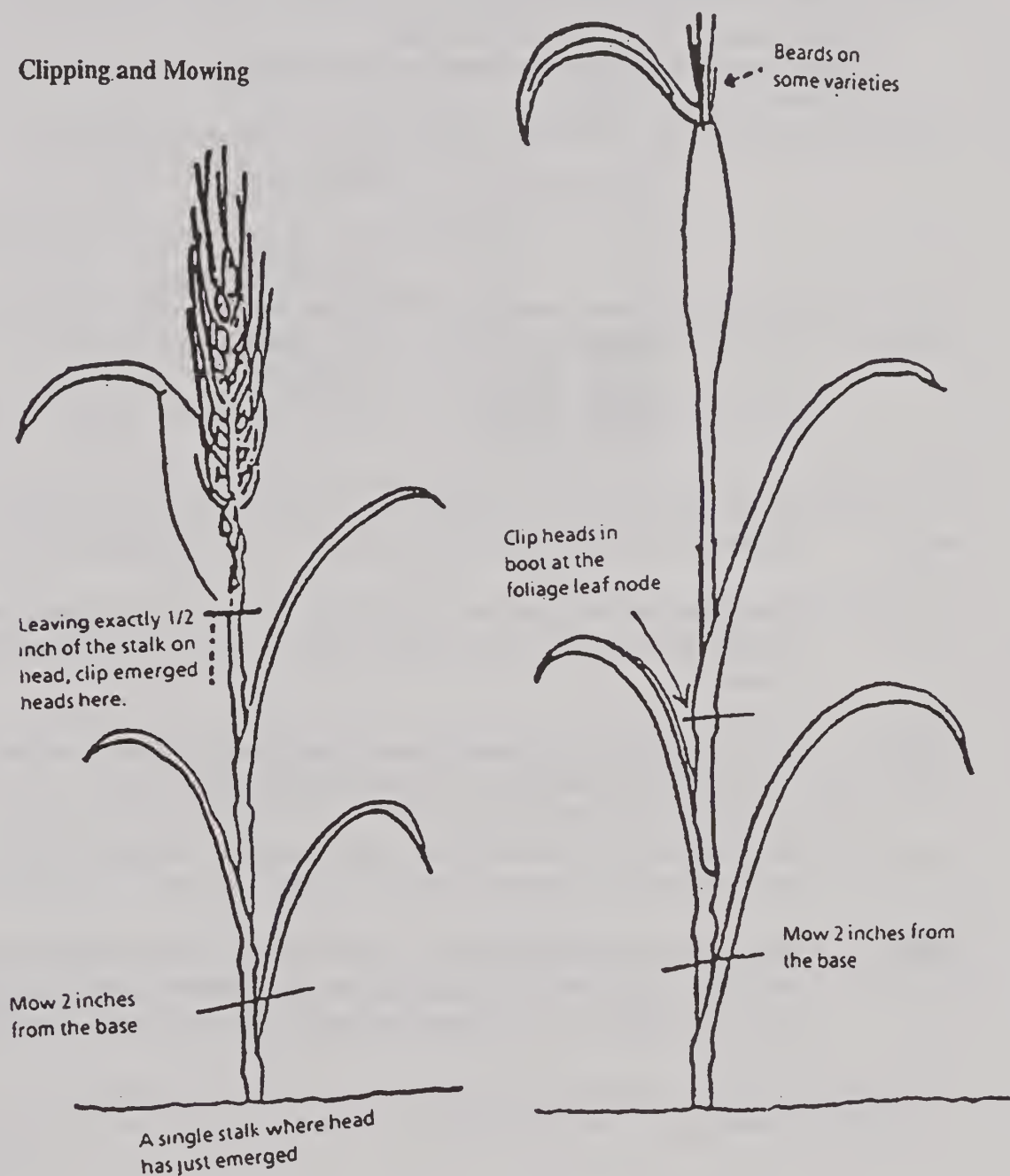
Step 1: Clip and Count all Heads in Late Boot in Row 1 - Record in Item 5. Clip at the base of the top foliage leaf.

Step 2: Clip and Count all Emerged Heads in Row 1 - Record in Item 6 and place emerged heads in same bag with late boot heads.

Clip stalk 1/2 inch below head before placing in bag.

Important: Remember to record the Step 1 count before going on to Step 2 and mixing the emerged and late boot heads.

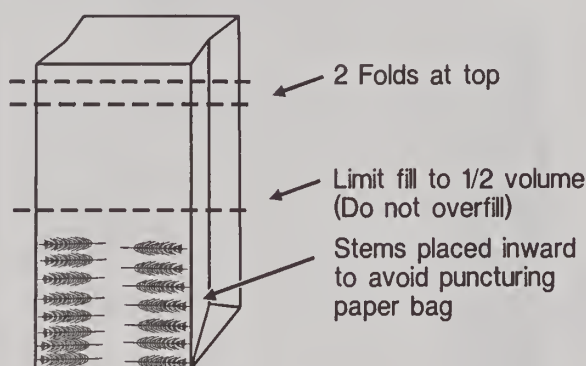
Clipping and Mowing



Bagging Instructions

To help prevent broken heads in shipment

- 1) limit heads per bag to only half volume,
- 2) limit samples shipped per cloth mailing bag to one and
- 3) follow these instructions:



Step 3: Repeat Steps 1 and 2 for ROW 2 and ROW 3. Record counts.

Care must be taken to record counts for the proper unit and row in Items 5 and 6. For broadcast units, record all counts in Row 3. Take care to make accurate counts.

Step 4: Pick up and count all detached heads on the ground in the unit and record in Item 6b. Place them in a large bag with the clipped heads.

Search within the count areas for any detached heads on the ground. Also pick up any loose kernels laying on the ground in the count area.

Step 5: Record heads clipped in Items 5 and 6 of the Form B onto pink ID tags, one for each unit. Add a note to the ID tag if one unit is missing or there are no heads to clip. If it is necessary to use two mailing bags for one sample, write "1 of 2"

and "2 of 2" on the bags and tie the two bags securely together. Attach one ID tag to each large bag. Check () after placing the bags in a cloth mailing sack that has a mailing tag addressed to the REGIONAL LABORATORY.

Enter enumerator and supervisor numbers and sign name.

After completing observations for Unit 2, check over all items on the Form B to make certain you have completed each step.

FINAL PREHARVEST OR POSTHARVEST ID TAGS

Use the "Pink" ID tag to identify the sample of final preharvest heads harvested from the count area when the Unit 1 maturity code is 6 or 7. Also use this tag for postharvest samples (Form E).

All lines of the upper section must be completed for proper identification of samples.

NOTE: It is very important that the date on the ID Tag is the same as the date on the Form B. The dates must be the same to allow for computer matching between the Form B data and the Regional Lab data.

Two tags of this type will be used for each sample, one for each unit. Identify each by circling the appropriate unit number.

Designate the maturity code of the unit which was circled in Item 3 of Form B. Most units will have a 6 or 7 code. Use the "other" category for 1) maturity code 5, and the farmer will immediately harvest anyway, 2) maturity code 8 to show the unit is in a blank area. When both units fall in blank areas (two code 8's), mail two ID tags together to the Regional Lab in a separate envelope with other Regional Lab samples. Note on the ID tag sufficient explanations for any of these situations.

Copy the number of heads counted and recorded on Form B for the unit circled. Make sure the number of heads clipped for each row and detached heads picked up in the unit and mailed to the Regional Lab are in agreement with the counts entered.

Verify that the cloth mailing sack mailing tag is properly addressed to the Regional Laboratory and the sack contains the lab samples from both units and the Form E questionnaire if this is a gleaning sample.

Chapter 6

Form B

WHEAT SAMPLE I.D. TAG
COUNT AREA AND GLEANINGS

STATE WA

POID 830081350

SAMPLE NO. 65

FORM B OR E DATE 7/01

TYPE OF WHEAT: W.W. (☒) S.W. () D.W. ()

ENUMERATOR Ph Collins

UNIT (Circle) 1 2

MATURITY CODE
OF UNIT (Circle) 6 7 Other

HEAD COUNTS: Copy from
Form B into block below.

Item	Row 1	Row 2	Row 3
5	—	—	✓
6(a)	56	55	53
6(b)		—	

IF POST-HARVEST GLEANINGS: CHECK ()

MAIL SAMPLE TO REGIONAL LAB

HARVESTING FOR SWATHED WHEAT FIELDS

During Survey Period.

If the maturity stage of Unit 1 (or Unit 2 when Unit 1 is blank) is Code 6 or 7 on this visit, the heads in the count areas will be clipped and sent to the Regional Laboratory.

If the maturity stage of Unit 1 has not reached Code 6 and the farmer will swath within 3 days, counts will be made and clipping will be done in the clip area as instructed on Form B. Be sure to send in a Form B. Be sure and date (MMDD) this Form B using the date of the field work. In addition, you will complete a second Form B and clip in the count area of each unit according to the following instructions.

Step 1: All stalks with a head attached in the count unit should be clipped at about the same height as the straw will be cut in the swathing operation. Extreme care must be taken so that heads and grain are not lost.

- Step 2:** The heads with straw attached from each unit should be tied together, placed in a cloth bag (similar to those used for mailing), or large paper bags if cloth bags are not available, and identified by segment number, sample number and unit number. Be sure to include all stalks with heads (both emerged and in the boot).
- Step 3:** These clippings should be taken from the field and stored in a place where they will not be destroyed by mice, birds or other animals. The period of storage shall not exceed one week.
- Step 4:** After the wheat has cured to the point where it would be if it were in the swath, the heads should be clipped from the straw and sent to the Regional Laboratory, following the regular clipping instructions. At this point re-evaluate the maturity of the sample. Update maturity codes on the Form B and the tags. If maturity code is not 6 or 7 after one week, call your Survey Statistician. Be sure to send in a Form B showing this as the final preharvest visit (maturity code 6 or 7). Be sure and date (MMDD) this Form B using the mailing date.
- Step 5:** Be sure each unit is properly identified from the time it is clipped until it is mailed to the laboratory.
- Step 6:** Whenever this procedure is used, write a note on the Form B identifying this as a "swathed" field.

Between Survey Periods.

Enumerators will make this final pre-harvest visit to sample fields just prior to swathing by the farmer. Do not make this visit more than 3 days in advance of swathing.

If the maturity stage of Unit 1 (or Unit 2 when Unit 1 is blank) is code 6 or 7 on this visit, the heads in the count areas will be clipped and sent to the Regional Laboratory.

If the maturity stage has not reached code 6, follow steps 1 through 6 above. Clip from the count area only. Only one Form B is required.

Chapter 6

Form B

UNITED STATES DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURAL STATISTICS SERVICE

Form approved
O.M.B. Number 0535-0088
Approval Expires 10/31/05
Project Code 101
QID-120031B

FORM B: WHEAT YIELD COUNTS -- 2003

<u>CROP CODE</u>	YEAR, CROP, FORM, MMDD (1-7)	STATE	ID NO.	SAMPLE
Winter 1 Spring (Other Than Durum) 6 Durum 7	3_3_	3201	830081350	065

Has operator applied pesticides with organophosphorous content since last field visit? YES ☐ NO ☐
If YES, enter latest application date _____ And name of pesticide _____

UNIT LOCATION

	UNIT 1		UNIT 2
Number of paces along edge of field	213	+30	243
Number of paces into field	88	+30	118

Date (6/1)

UNIT INFORMATION

1. Determine and assign a Unit Location Status

- a. First visit to lay out unit Status 1
b. Unit relocated this month Status 2
c. Sample unit laid out previously Status 3

UNIT 1	UNIT 2
305 <u>1</u>	307 <u>1</u>

Go to Item 3 when coded 3 otherwise go to Item 2.

ROW SPACE MEASUREMENT

2. Measure distance from stalks in Row 1 to
Stalks in Row 5

301 <u>40</u>	303 <u>41</u>
---------------	---------------

3. STAGE OF Maturity: (Circle one code for each unit)

Maturity Stage	Pre-Flag	Flag or Early Boot	Late Boot Or Flower	Milk	Soft Dough	Hard Dough	Ripe	Blank
UNIT 1 Count Area	300 1	300 2	300 <u>3</u>	300 4	300 5	300 6	300 78	300 8
UNIT 2 Count Area	302 1	302 2	302 <u>3</u>	302 4	302 5	302 6	302 7	302 8
If Unit One Maturity is:	1 or 2, start counts with Item 4		3, 4, or 5, start counts with Item 5.			6 or 7, start counts with Item 5.		8, substitute Unit Two. When both 8, go to Item 7.

COUNTS WITHIN UNITS

4. Number of stalks (stems) in row

5. Number of heads in LATE BOOT

6. a. Number of emerged heads on all stalks

- b. Number of detached heads in unit

(Complete 6b only on Final PRE-HARVEST VISIT)

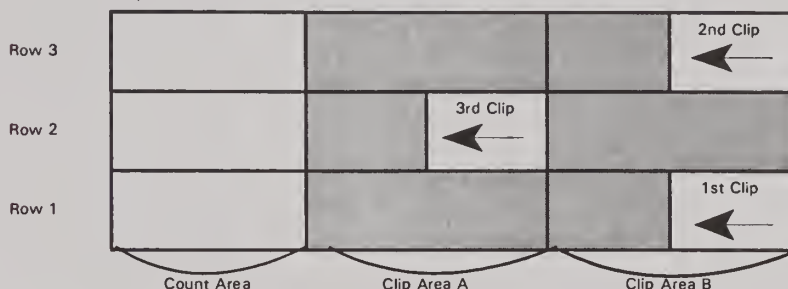
UNIT 1			UNIT 2		
Row 1	Row 2	Row 3	Row 1	Row 2	Row 3
311	312	313	314	315	316
351 <u>35</u>	352 <u>32</u>	353 <u>28</u>	354 <u>37</u>	355 <u>41</u>	356 <u>35</u>
331 <u>21</u>	332 <u>23</u>	333 <u>26</u>	334 <u>19</u>	335 <u>16</u>	336 <u>21</u>
	341			344	

FORM B: WHEAT (Continued)

7. If the MATURITY CODE Circled in Item 3 for Unit One (or Unit Two when Unit One is blank) is:

- (a) Code 1 or 2: SKIP Items 8 and 9. Enter enumerator and supervisor numbers and sign name.
- (b) Code 3, 4 or 5: Go to Item 8.
- (c) Code 6 or 7: Go to Item 9.
- (d) Code 8 (Both Units): Record dashes for appropriate items plus note on Form B and kit envelope that both units are in blank area. Enter enumerator and supervisor numbers and sign name.

Lay out Units 1 and 2 as shown below:



CLIPPING ORDER

Both Units (Item 8)

First Clipping -- Row 1 in Clip Area B

Second Clipping -- Row 3 in Clip Area B

Third Clipping -- Row 2 in Clip Area A

8. WITHIN CLIP AREAS--Make clippings in the designated ROW within Clip Areas OF EACH unit following steps below.

** If Unit 2 Maturity Code is 2, SKIP Items 8 & 9, enter enumerator and supervisor numbers and sign name.

Discard Unit 1 clipping and DO NOT send any clippings to the Lab. **

Step 1 -- Mark half-way point in specified row in clip area.

Step 2 -- **MOW** (cut stalk within 2 inches of base) all wheat stalks in specified row until 5 Emerged Heads (If that many) are obtained OR until one-half the row is completely mowed. Begin mowing at the end of the row farthest from count area and mow in direction of count area. Examine each stalk for emerged head as it is mowed; if present, clip stalk 1/2 inch below the head. Place the 5 (or less) emerged heads in a small bag. Record count on YELLOW I.D. tag. Also, when mowing, clip and count any heads in late boot at base of top foliage leaf and place in a medium size bag.

Step 3 -- **MOW** remaining stalks up to the half-way mark. Examine each stalk and determine which ones are emerged heads and late boot heads. CLIP the stalk 1/2 inch below the emerged head or at base of top foliage leaf for late boot heads. Place the remaining emerged heads in a large bag and the late boot heads in a medium bag.

Step 4 -- Record the count of the remaining emerged heads and the late boot heads on the YELLOW I.D. tag.

Repeat steps 1 through 4 for Unit 2 using same bags for emerged heads and late boot heads as used in Unit 1. Prepare one I.D. tag. Label all bags with sample number. Seal and place the small and medium size bags in the large bag. Seal large bag. Verify and date YELLOW I.D. tag and attach to outside of large bag.

Check here () after placing the large bag in a cloth mailing sack addressed to REGIONAL LABORATORY.
ENTER enumerator and supervisor numbers and sign name.

9. WITHIN COUNT AREAS -- Clip and Count all heads in count area of BOTH units following steps below. Use a separate large bag for each unit.

Step 1 -- Clip all heads in Late Boot at base of top foliage leaf in Row 1 - Compare with Item 5 count.

Step 2 -- Clip all Emerged heads 1/2 inch below head in Row 1 - Compare with Item 6a count and place emerged heads in same bag with late boot heads.

Step 3 -- Repeat steps 1 and 2 for Rows 2 and 3. -- Check counts.

Step 4 -- Pick up all Detached Heads on ground in unit counted in Item 6b. Place in bag with clipped heads.

Record heads clipped in Items 5 and 6 of Form B and on PINK I.D. Tags. Date and attach one I.D. Tag to each large bag.

Check here () after placing bags in cloth mailing sack addressed to REGIONAL LABORATORY.

Enter enumerator and supervisor numbers and sign name.

Enumerator M. Collins

Enumerator
Number

390

310

Supervisor
Number

391

110

Did a supervisor assist you in working this sample? () YES, (✓) NO

STATUS CODE

390

- NOTES -

GENERAL

The Form D. Postharvest interview will not be completed this year for the Objective Yield Survey.

- NOTES -

GENERAL

The purpose of the Postharvest gleanings (Form E) is to provide the harvest loss used in adjusting the gross yield (calculated from Form B) to a net yield.

Form E is completed for every fourth sample (samples with numbers evenly divisible by 4). Do the gleanings only after the sample field has been harvested, preferably the same day, but it must be done within 3 days of harvest. Additional gleanings samples may be selected after the start of the survey. You will be notified of any changes/additions.

If the sample field has been disked, plowed, grazed, straw picked up after harvest or not harvested for grain, a recently combined alternate field will be gleaned. For Winter, Spring or Durum Wheat, the alternate field will be one in the same tract. If a recently combined field is available, mark the Form E "Alternate Field" in the field notes.

If you are unable to make a postharvest gleanings count, report the reason in the field notes space. You should complete an interview for the sample field even if a Form E could not be completed.

LOCATION, LAYOUT AND MARKINGS

The Form E units are located using the same number of paces as used for Form B units, plus five. These paces are recorded on the Form E. To locate, lay out and mark the gleaning units, follow the steps outlined below and the illustration in this section.

Step 1: The postharvest unit paces to use are indicated on Form E. Walk the number of paces along the edge of the field and into the field. Do not mark them permanently as you will not return to these units.

Step 2: After you have taken the last of the required paces, place a yardstick so that it touches the toe of your shoe and crosses four rows of stubble immediately in front of your toe or to the left of your toe, depending on the direction of the rows at that point.

If no drill rows can be distinguished, see the broadcast procedures given in Chapter 5 and illustrations to lay out the gleanings unit.

- Step 3:** Lay out the 5 foot buffer zone. Anchor the zero end of the 50 ft. steel tape just beyond the yardstick and directly along side the plant stubble in Row 1. The zero end of the tape must be anchored firmly and close to the ground so it will not move when the measurement is being made. Insert a red florist stake (anchor stake) at this anchor point.
- Step 4:** In Row 1, place a red starting florist stake exactly 5 feet from the anchor point. The florist stake should be placed in the row of stubble. This marks the buffer zone.
- Step 5:** Reposition the yardstick within the 5 foot buffer so that it touches the starting florist stake and crosses four drill rows. Be careful to position the yardstick in a straight line from the starting florist stake across the 4 rows of stubble. The end of the yardstick closest to the starting florist stake is always the lower left hand corner of the gleaning unit.
- Step 6:** The wheat frame identifies the length of row included in the gleaning unit. Always place the frame to the right of the yardstick. Working from outside the unit carefully slip the frame into Row 1 through the base of the stubble with the inside corner of the left tine touching the florist stake just placed in Row 1. The tine(s) of the frame may divide a plant that has many stalks like ribs of an umbrella. You are to slip the frame through the base of the stubble immediately to the right of the yardstick with the starting stake touching the inside corner of the left tine; thereby, allowing the tine to determine which stalks and stubble are included or excluded for the unit. Do not move stubble in or out of the frame. The 2 tines should extend through the stubble with the back of the frame parallel to the row. Insert the ending red florist stake in the row at the point where the inside corner of the frame tine crosses the row of stubble. Important: Be sure that the inside corner of the tines are touching the florist stakes. This marks Unit 1, Row 1 of the gleaning area.
- Step 7:** In Row 4, place a red florist stake exactly at the outside edge of the 5 foot buffer so that it touches the yardstick. This time the florist stake should be placed on the inside of Row 4 but away from the base of the plant stubble to exclude Row 4.

Step 8: Next slip the wheat frame into Row 4 through the base of the stubble with the inside edge of the left tine touching the florist stake just placed on the inside of Row 4. The frame will be inserted to exclude the stubble in Row 4 so that when the four stakes are connected with flagging ribbon, three drill rows and three middles will be included. Row 4 stubble should be excluded. This will mark exactly the area to be gleaned and will eliminate accidental shifting of the boundaries while gleaning is in progress. The 2 tines should extend through the stubble (from the inside of the unit) with the back of the frame parallel to the row. Important: Be sure that the inside corners of the tines are touching the florist stakes.

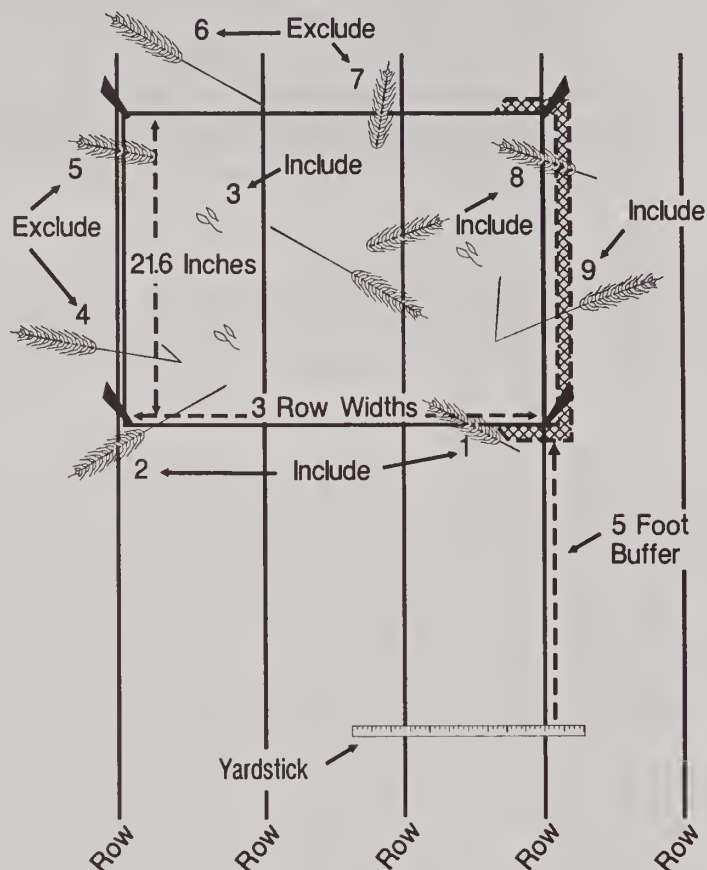
Chapter 8

Postharvest Gleanings

The following illustration must be strictly followed to assure accurate harvest loss indications. To glean outside these boundaries will erroneously expand harvest loss and to glean less than all of the wheat inside the boundaries will erroneously reduce the harvest loss indication.

<u>Position</u>	<u>Procedure</u>
-----------------	------------------

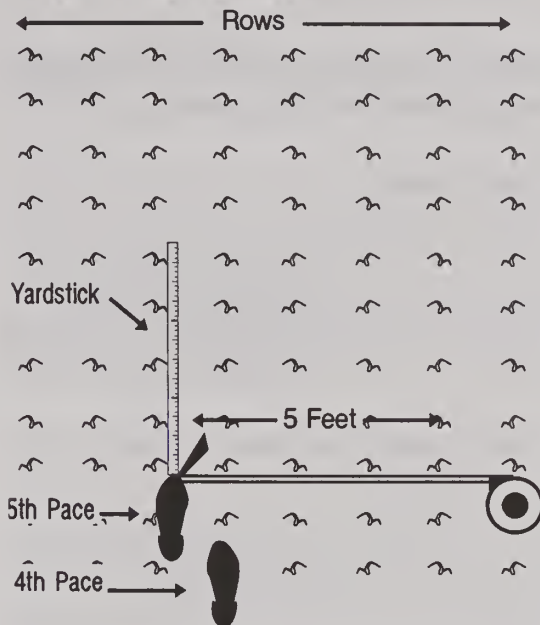
1 Head	Include
2 Attached Stalk	Include
3 Loose Grain	Include
4 Detached Stalk	Exclude
5 Head	Exclude
6 Attached Stalk	Exclude
7 Head	Exclude
8 Head	Include
9 Detached Stalk	Include



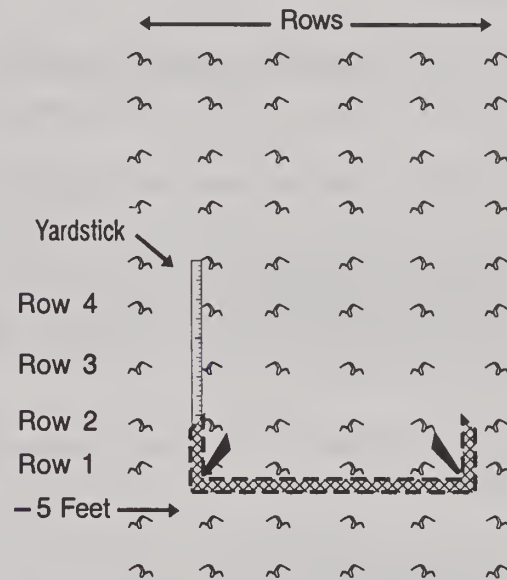
Rules:

- Rule 1: Include detached stalks with heads and loose grains that are on the two starting corner boundaries (up border and right border). The starting corner is the florist stake marking the 5 foot buffer (positioned at the lower left corner of the unit).
- Rule 2: Exclude detached stalks with heads and loose grains that are on the two remaining boundaries.
- Rule 3: Attached stalks within the boundaries are included.
- Rule 4: Attached stalks outside the boundaries are excluded.

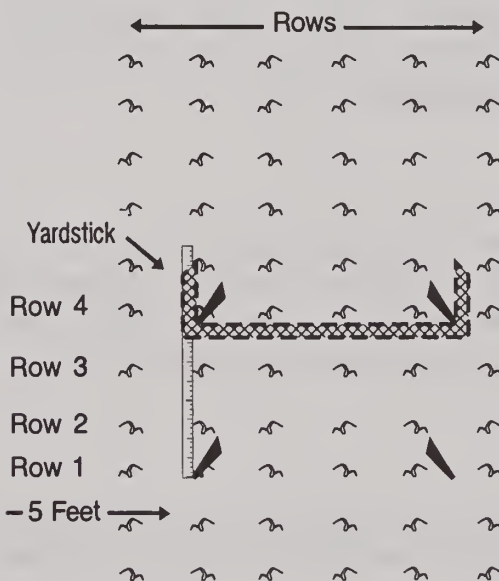
Laying Out Gleaning Unit



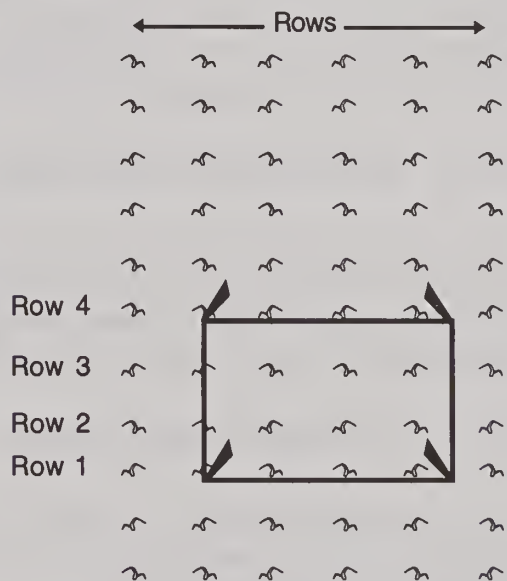
Steps 2, 3: On last pace lay yardstick down at toe, anchor 50-ft tape, insert florist stake at anchor.



Steps 4, 5, 6: Mark Row 1 exactly 5-ft. from anchor point, reposition yardstick, slip frame with left line touching starting florist stake, then insert ending florist stake.



Steps 7, 8: Mark Row 4 at 5-ft. buffer (touching yardstick and inside Row 4), slip frame with left line touching florist stake, move florist stake up to but excluding Row 4 stubble, then insert ending florist stake.



Connect 4 florist stakes with flagging ribbon.

Chapter 8

Postharvest Gleanings

FORM E

Be sure the identification (usually a label) is in the space provided at the top of each Form E. If not, you must record the identification from the sample field kit envelope.

Record the date in the space provided at the top of the form.

UNIT LOCATION	(Diagram on reverse side)	UNIT 1	UNIT 2
Number of paces along edge of field		213 ⁺⁵	243 ⁺⁵
Number of paces into field		88 ⁺⁵	118 ⁺⁵

Unit location paces are recorded. You are to add 5 paces (preprinted) to the recorded number to locate the units.

	UNIT 1	UNIT 2
Measure distance from stalks in Row 1 to stalks in Row 5	704 4.1	705 4.1

Measure the distance (in feet and tenths) across four drill row spaces at the beginning of the buffer zone with the steel tape. Start at the center of the stalks in Row 1 and measure across four spaces or middles, to the center of the stalks in Row 5 (see the Measuring Distance Across Row Spaces illustration in Chapter 6). Make a note of unusual row spacing because of double rows, skips, lapping by drill, etc. If a unit falls in an area where no drill rows can be distinguished, you will not complete this item.

Item 1a: All Unthreshed Whole Heads

Item 1a requires that you pick up whole heads which lie within the unit. If there are any headed stalks which have not been severed from the ground (for example, lodged stalks or short stalks missed by the combine), these heads should be gleaned only if the stalks emerged from the ground **inside** the unit. Place these whole heads in a paper bag.

Item 1b: All Partly Threshed Heads

If any partly threshed heads or loose grains are found, place them in the same bag with the whole heads. This requires that you go over the ground carefully, inch by inch. You must pick up every grain within the unit.

Item 1c: All Loose Wheat Grains

Each grain in the unit is important. On the average, each 80 grains picked up within a unit is equal to one bushel of harvest loss per acre.

Some enumerators have found that under dry conditions a dust pan and a small whisk broom are helpful in the gleanings operation. The loose grain and partly threshed heads on the ground can be swept up, dumped on a screen for cleaning out the dirt and then bagged.

Check () for each unit to show the heads and loose grains were picked up and placed in bags.

All gleanings for the two units for each sample should be put into the sample bag. Complete the sample identification section of the ID tag. Check () the pink identification tag for the Postharvest Gleanings and attach it, facing out, to the paper bag. Place the bag in a mailing sack that has a mailing tag addressed to the Regional Laboratory.

Enter enumerator and supervisor number and sign name.

Put the Form E questionnaire(s) in the mailing sack with the corresponding samples. Mail the sack with the Form E questionnaire(s) and gleanings to the Regional Laboratory.

Chapter 8

Postharvest Gleanings

UNITED STATES DEPARTMENT OF AGRICULTURE
NATIONAL AGRICULTURAL STATISTICS SERVICE

Form approved
O.M.B. Number 0535-0088
Approval Expires 10/31/05
Project Code 101
QID-120031E-W

FORM E: WHEAT YIELD SURVEY -- 2003 POST-HARVEST GLEANINGS

<u>CROP CODE</u>	YEAR, CROP, FORM, MMDD (1-7)	STATE	ID NO.	SAMPLE
Winter 1 Spring (Other Than Durum) ... 6 Durum 7	3_7_ _ _	3201	830081350	065

Date (0704)

NOTE: The post-harvest field gleanings should be completed as soon after harvest as possible, and must be done within 3 days after harvest. If the sample field has been plowed, disked or pastured since harvest, select an alternate field for gleanings if one is available in the tract or nearby field (in the same operation) for list frame sample(s).

UNIT LOCATION (Diagram on reverse side)

Number of paces along edge of field

Number of paces into field

Measure distance from stalks in
Row 1 to stalks in Row 5 Feet & Tenths

UNIT 1	UNIT 2
213 +5	243 +5
88 +5	118 +5
704 4.1	705 4.1

GLEANINGS (Place all gleanings from both units in one paper bag)

- 1. PICK UP IN BOTH UNITS:**
- a. All unthreshed whole heads
 - b. All partly threshed heads
 - c. All loose wheat grains

CHECK (✓)	CHECK (✓)
--------------	--------------

Was an alternate field used for making post-harvest observations? () YES, (✓) NO

FIELD NOTES: If post-harvest observations cannot be made, give reasons here.
Indicate if an alternate field was selected

NOTE: Mail this Form E to the Regional Lab
in the bag with the gleanings.

Enumerator M. Collins

Enumerator Number	790 310
Supervisor Number	791 110
STATUS CODE	780

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